

DRAFT BASIC ASSESSMENT REPORT

FOR THE

PROPOSED THUSI ACCESS ROAD, LOCATED ON THE
REMAINING EXTENT OF FARM 145 VAAL BANK, WARD 12,
UMZIMKHULU LOCAL MUNICIPALITY, HARRY GWALA
DISTRICT MUNICIPALITY, KWAZULU-NATAL.

EDTEA Reference: DC/00010/2021



June 2021

Applicant:



Umzimkhulu Local Municipality

Environmental Consultant:



GREENBELT
PROJECTS

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TITLE:

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Greenbelt Ref:
21_020

DATE:
June 2021

REPORT STATUS:
Final

VERIFICATION	CAPACITY	NAME	SIGNATURE	DATE
By Authored and Approved by	Principal Environmental Scientist	Steven Whitaker		21 April 2021



Contents

1	Introduction.....	5
1.1	Details of the EAP	5
1.2	Location of the Activity	6
1.3	Development Proposal.....	6
1.4	Description of the Scope of the Proposed Activity	7
1.5	Approach	9
2	Need and Desirability of the Proposed Development	10
3	Preferred Site, Activity and Technologies.....	10
4	Alternatives.....	10
4.1	Site Alternatives.....	10
4.2	Technological/Design Alternatives	10
4.3	No-Go Alternative	12
4.4	Preferred Alternative	12
5	Public Participation Process	12
5.1	Objectives of the Public Participation Process	12
5.2	Details of the PPP	12
5.3	Summary of the Issues Raises by IAPs.....	13
6	The Receiving Environment (All Alternatives)	14
6.1	Geographical and Physical Environments.....	14
6.1.1	Topography and Hydrology	14
6.1.2	Geology and Soils	14
6.1.3	Climate	15
7	Biological Environment	16
7.1	Flora and Fauna.....	16
7.1.1	Wetland and Aquatic Assessment	17
7.2	Socio-Economic Environment.....	20
7.3	Culture and Heritage Environments.....	21
8	Environmental Impact Assessment of the Proposed Activity	21
8.1	Geographical and Physical Environments.....	21
8.1.1	Topography and Drainage	21
8.1.2	Hydrology and Geomorphology	21
8.1.3	Geology and Soils	22
8.1.4	Climate	22
8.2	Biological Environments.....	22



8.2.1 Direct ecosystem modification 22

8.2.2 Habitat connectivity and edge disturbance 22

8.2.3 Water Pollution 23

8.3 Socio-Economic Environment..... 24

8.3.1 Social..... 24

8.3.2 Roads and Traffic..... 24

8.3.3 Emissions – Waste, Smoke, Dust, Noise 24

8.3.4 Heritage and Cultural Environment 25

9 Environmental Risk Assessment Methodology 26

9.1 Risk Assessment Methodology 26

9.2 Determining Consequences 26

9.3 Determining Likelihood 26

9.4 Determining Overall Impact Significance..... 27

10 Environmental Impact Assessment Matrix..... 28

10.1 Geographical and Physical Environments (Preferred Alternative) 29

10.2 Biological Environments (Preferred Alternative) 34

10.3 Socio-Economic Environment (Preferred Alternative) 37

10.4 Cumulative Impacts 40

10.5 Degree to which the Impacts can be reversed..... 40

10.6 Degree to which Impacts may cause Irreplaceable Loss of Resources 40

10.7 Outcome of the Site Selection Matrix 40

11 Environmental Impact Statement 40

11.1 Assumptions, Uncertainties and Gaps in Knowledge 40

11.2 Summary of Findings..... 40

11.2.1 Summary of the Positive and Negative Impacts and Risks 40

11.3 Key Impact Management Measures 42

11.3.1 Mitigation Measures to be included in EMPr 42

11.3.2 Mitigation Measures Identified in Specialist Reports 42

11.4 Aspects Conditional to the Findings 43

11.5 Reasoned Opinion on Proposed Development..... 43

12 Conclusion..... 43

13 Timeframes 44

13.1 Environmental Authorisation Timeframes (if no Operational aspect) 44

14 EAP Affirmation 44

15 Financial Provisions..... 44

16 Any Other Specific Information..... 44



Appendix A – Mapping	45
Appendix B – Development Proposal (Diagram)	57
Appendix C – Specialist Investigations.....	58
Appendix D – Public Participation.....	59
Appendix E – Site Photographs	66
Appendix F – Environmental Management Programme.....	69



1 Introduction

Greenbelt Projects (Pty) Ltd has been commissioned to undertake an environmental impact assessment for the proposed Thusi Access Road. The proposed development will require an Application for Environmental Authorisation in the form of a Basic Assessment (BA), which includes a Basic Assessment Report (BAR) and a Comments and Responses Report (CRR) Report which will be submitted to the KwaZulu-Natal Department of Economic Development Tourism and Environmental Affairs (EDTEA) for Environmental Authorisation (EA).

This Basic Assessment process is being undertaken in accordance with Sections 19 – 20 in terms part 2 of chapter 4 of the National Environmental Management Act (Act No 107 of 1998), as amended, and the Environmental Impact Assessment Regulations of December 2014, as amended 2017. These Regulations identify various activities which may have a substantial detrimental effect on the environment. In addition, the Regulations list procedures for assessing potential associated environmental impacts. Public participation and the scoping of issues form part of these procedures, the results of which are captured in this, the Basic Assessment Report.

1.1 Details of the EAP

Greenbelt Projects (Pty) Ltd was established in 2020 and has a record of undertaking independent environmental processes for a range of clients in compliance with the requirements of the various competent authorities. In this respect we reiterate the declaration of independence made in the application form for this project assented to and lodged with the competent authority.

Contact Details	Environmental Assessment Practitioner (EAP)
Business name of EAP:	Greenbelt Projects (Pty) Ltd
Physical address:	Suite 13, 6 Jabu Ngcobo Drive, Umdloti, 4319
Postal address:	PO Box 791, Umhlanga, Durban
Postal code:	4320
Telephone:	071 140 8350 / 087 701 6514
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Cell:	071 140 8350

Names and details of the expertise of each representative of the EAP involved in the preparation of this report are provided below. Curricula vitae will be provided on request.

Name of representative of the EAP	Educational qualifications	Professional affiliations	Environmental assessment experience (yrs)
Steven Whitaker	B.Sc. (Hons)	EAPASA (2019/1492), IAIA (2285)	14 years

Names and details of the expertise of each specialist that has contributed to this report:

Name of specialist	Education qualifications	Field of expertise	Section/ s contributed to in this basic assessment report	Title of specialist report/ s as attached in Appendix C
Ryan Edwards	MSc. Pr.Sci.Nat	Terrestrial and Aquatic Ecology	Appendix C	Wetland and Riparian/Aquatic Assessment Report Thusi Access Road
Frans Prins	MA (Archaeology)	Heritage and Cultural	Appendix C	Heritage impact Assessment for the Thusi Access Road
Prof Marion Bamford	PhD	Palaeobotany	Appendix C	Palaeontological Impact Assessment for the Thusi Access Road
Mr Peter	Pr Tech	Geotechnical Engineering	Appendix C	Geotechnical Assessment for the Thusi Access Road



1.2 Location of the Activity

The project is situated in Ward 12 of the Umzimkhulu Local Municipality, Harry Gwala District Municipality. The site is located approximately 30km east of Kokstad, 32km south west of Umzimkhulu and 10 km north west of Harding. The site is located at co-ordinates 30°30'22.80"S 29°44'48.73"E. The proposed project is located on the Remaining extent of Farm 145 Vaal Bank SG 21 Digit Code: NOES00000000014500000.

Table 1: Project Proponent and Site Details

Applicant	
Trading name	Umzimkhulu Local Municipality
Contact person	Zweliphansi Stanley Sikhosana
Postal address	Private bag 53, Umzimkhulu
Telephone	(039) – 259 5000
E-mail	zssikhosana@umzimkhulum.gov.za
Property Details	
Property Details	Remaining extent of Farm 145 Vaal Bank
Property Owner	SA Government
SG 21 Code	NOES00000000014500000
Land Use / Zoning	Vacant / Unspecified
Title Deed	DU1000/800
Coordinates	30°30'22.80"S 29°44'48.73"E
Local Municipality	Umzimkhulu Local Municipality
District Municipality	Harry Gwala District Municipality
Province	KwaZulu-Natal
Neighbouring Landuses	
North	Rural area
East	Rural area
West	Rural area
South	Rural area
Water Catchment Management Area	T52G Quaternary catchment. uMvoti to uMzimkhulu WMA 11
Quaternary Drainage Region	T52G Quaternary catchment

1.3 Development Proposal

The Umzimkhulu Municipality have proposed the construction and upgrade of 2.8km of the Thusi Gravel Access Road. The proposed project aims to allow local residents to have improved, formalised vehicular access to their homes, schools, shops and the extended road network. The proposed development is a new road construction with upgrade portions of the existing road. To project will create a formal infrastructure link from the north of Thusi to south Thusi, Vimbela and the National Route 2.

The proposed project traverses one perennial tributary of the Umbumbane River at 30°30'22.80"S 29°44'48.73"E near the project mid-point. The proposed road upgrade and construction will be constructed and complete with formal stormwater infrastructure, cut-off drains and a watercourse crossing structure. The proposed road width is expected to be a 4m wide cambered gravel access road, with 1m servitudes on either side, having a total width of 6m. The major watercourse crossing will comprise 10 x 1200mm Ø pipes. The watercourse crossing dimensions are expected to be 5m wide by 16.2m long. Ingress and egress points at the wingwalls will be shaped to conform with the new gravel road elevation. The watercourse crossing will be founded on a concrete base to support portal culverts and road pavement structure. The concrete base and portal culvert will be founded on firm ground of



200mm G7 sub base and 200mm G2 base. The proposed project is located within 3km of the Ngele Forest Nature Reserve. The proposed road traverses an unnamed local road starting at 30°30'56.34"S 29°45'8.11"E and ending at 30°29'54.94"S 29°44'27.47"E.

During construction services chemical toilet facilities will be provided. Water quantity and source for construction purposes (such as dust suppression, compaction, and potable water), will be determined and confirmed by the awarded construction contractor.



Plate 1. Image looking north east showing an overview of the watercourse proposed for crossing. Note the perennial nature of the Umbunbane River.



Plate 2. Image looking south overlooking the watercourse crossing towards the start point of the proposed road.

1.4 Description of the Scope of the Proposed Activity

The proposed development triggers identified activities in terms of Listing Notice 1, Government Notice No. 327, as amended 2017, and Listing Notice 3 Government Notice No. 324, as amended 2017, of the National Environmental Management Act, 1998 (No. 107, 1998).



Description of Listed Activity	Applicability
<p>Listing Notice 1 No. 327, as amended, 2017 Activity 12. The development of – (iii) bridges exceeding 100 square metres in size; (xii) infrastructure or structures with a physical footprint of 100 square metres or more Where such development occurs – (a) Within a watercourse (b) In front of a development setback; or (c) If no development setback exists, with 32m of a watercourse, measured from the edge of the watercourse.</p> <p>The proposed infrastructure will exceed 100m² in size, within 32 metres of a watercourse, therefore, activity 12 is triggered.</p>	<p>The proposed project traverses one perennial tributary of the Umbumbane River at 30°30'22.80"S 29°44'48.73"E near the project mid-point. The major watercourse crossing will comprise 10 x 1200mm Ø pipes. The watercourse crossing dimensions are expected to be 5m wide by 16.2m long. Ingress and egress points at the wingwalls will be shaped to conform with the new gravel road elevation. The watercourse crossing will be founded on a concrete base to support portal culverts and road pavement structure. The concrete base and portal culvert will be founded on firm ground of 200mm G7 sub base and 200mm G2 base</p> <p>The proposed road and watercourse crossing infrastructure will exceed 100m² in size, within 32 metres of a watercourse, therefore, activity 12 is triggered.</p>
<p>Listing Notice 1 No. 327, as amended, 2017 Activity 19. The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from – (i) A watercourse.</p>	<p>The proposed project traverses one perennial tributary of the Umbumbane River at 30°30'22.80"S 29°44'48.73"E near the project mid-point. The major watercourse crossing will comprise 10 x 1200mm Ø pipes. The watercourse crossing dimensions are expected to be 5m wide by 16.2m long. Ingress and egress points at the wingwalls will be shaped to conform with the new gravel road elevation. The watercourse crossing will be founded on a concrete base to support portal culverts and road pavement structure. The concrete base and portal culvert will be founded on firm ground of 200mm G7 sub base and 200mm G2 base</p> <p>The construction of the proposed road and watercourse crossing structures, will require the infilling, depositing, and excavation of more than 10m³, therefor activity 19 is triggered.</p>



<p>Listing Notice 1 No. 324, as amended, 2017 Activity 14. The development of – (iii) bridges exceeding 10 square metres in size; (x) buildings exceeding 10 square metres in size; (xii) infrastructure or structures with a physical footprint of 10 square metres or more</p> <p>(ii) infrastructure or structures with a physical footprint of 10 square metres or more; Where such development occurs – (a) Within a watercourse (b) In front of a development setback; or (c) If no development setback has been adopted, with 32 metres of a watercourse, measured from the edge of a watercourse. (c) If no development setback exists, with 32m of a watercourse.</p> <p>d. KwaZulu-Natal x. Outside urban areas: (aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any terrestrial protected area identified in terms of NEMPAA, or from the core area of a biosphere reserve.</p>	<p>The proposed project will exceed 10 square metres in size, and occurs outside urban areas, within 3km of the Ngele Nature Reserve. Activity 14 is therefore triggered.</p>
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1.5 Approach

In order to meet the objectives of the environmental assessment study, the following activities were undertaken:

- Consultation with representatives of Umzimkhulu Local Municipality to establish the nature and extent of the proposed activity
- Identification of legislation, regulations and guidelines pertaining to the proposed activity
- A baseline desktop survey
- Site visits to the area to determine the nature of the affected environment and to identify potential issues of concern
- An identification and assessment of the physical, biological, social, economic and cultural aspects of the environment that may be affected by the proposed activity
- The identification and assessment of any feasible and reasonable alternatives
- Identification and liaison with key Interested and Affected Parties (IAP)
- Advertisement in the local press, placement of notices on site, distribution of pamphlets and Background Information Documents (BIDs); and,
- The compilation of this document the Basic Assessment Report.
- Circulation of the Draft Basic Assessment Report for comment
- Updating of the Draft Basic Assessment Report to Final to include all comments received.



2 Need and Desirability of the Proposed Development

The proposed development is a new road construction with upgrade portions of the existing road. The project aims to provide safe vehicular and pedestrian access across a perennial tributary of the uMbumbane River within ward 12 while improving the safety and access for the local community. The perennial tributary of is currently traversed via an informal foot tracks with no vehicular crossing. Vehicular and pedestrian access across the perennial tributary can be challenging during times of average to high rainfall. At present, there is no formal infrastructure to cater for high rainfall periods and the crossing is in a state of dis-repair resulting in an unsafe environment for the local inhabitants, school children and livestock when crossing the river. The proposed gravel road and crossing structure will provide a formal link between villages in the surrounding area. Improved and efficient access to hospitals, emergency services, community halls and the National Route 2 and extended road network will be established through the implementation of the Thusi Access Road.

3 Preferred Site, Activity and Technologies

As the preferred site already has an existing foot track road leading towards and from either side of the perennial tributary of the uMbumbane River, it is preferable to develop this site, rather than developing at an entirely new location crossing at an alternative position, with associated clearing and access from either side of the proposed watercourse crossing. The road alignment is intended to serve the rural residential homes located nearby the proposed site. The proposed Thusi Access Road is the route which the local communities utilise between villages, schools and the local road network, as such the track follows contours which are easily traversed. The current watercourse crossing consists of an informal stone crossing with rudimentary drainage that does not accommodate moderate to high rainfall periods. The proposed formal road and associated watercourse crossing will help to ensure an adequate and safe crossing area during high rainfall and flood events. Alternative methodologies may be available; however, the proposed method is deemed the most cost-effective and sustainable solution. Please see Appendix B for detailed design.

4 Alternatives

4.1 Site Alternatives

No alternative sites have been considered as the proposed Thusi Access Road is site specific so as to service the communities of ward 12 ad surrounding areas. The proposed road and crossing will provide a vehicular pedestrian link for the village of Thusi.

4.2 Technological/Design Alternatives

The current informal access track and rudimentary stone crossing are not considered infrastructure but rather informal wearing of access tracks by pedestrians and livestock. The crossing currently comprises informal placement of stones within the watercourse. These are likely succumb to damage by blockage from flood debris and other accumulated waste and vegetation. Design, layout and configuration of South African roads is standard and are ordinarily employed by developers such as the Municipality; alternatives are likely to be inferior. The proposed option is considered to be the most cost effective option in order to provide basic infrastructure services.



The initial proposal involved a watercourse crossing across the uMbumbane watercourse at an oblique alignment. Following the Wetland Assessment undertaken by Verdant (2021), a recommendation the re-align the roads western approach to the river at a perpendicular angle. This would reduce the length of impact to the watercourse and help to mitigate impact on the delineated watercourse unit W01 and W03. The engineer has subsequently proposed to revise the alignment.

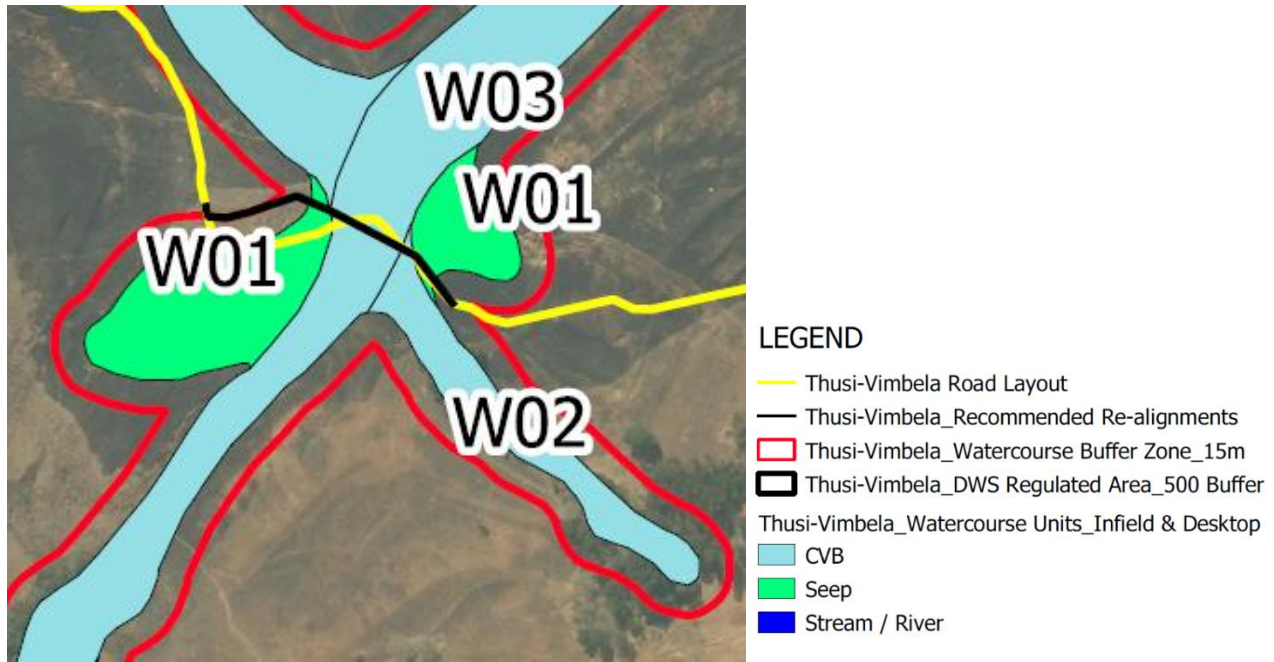


Figure 1. Proposed re-alignment recommendation.

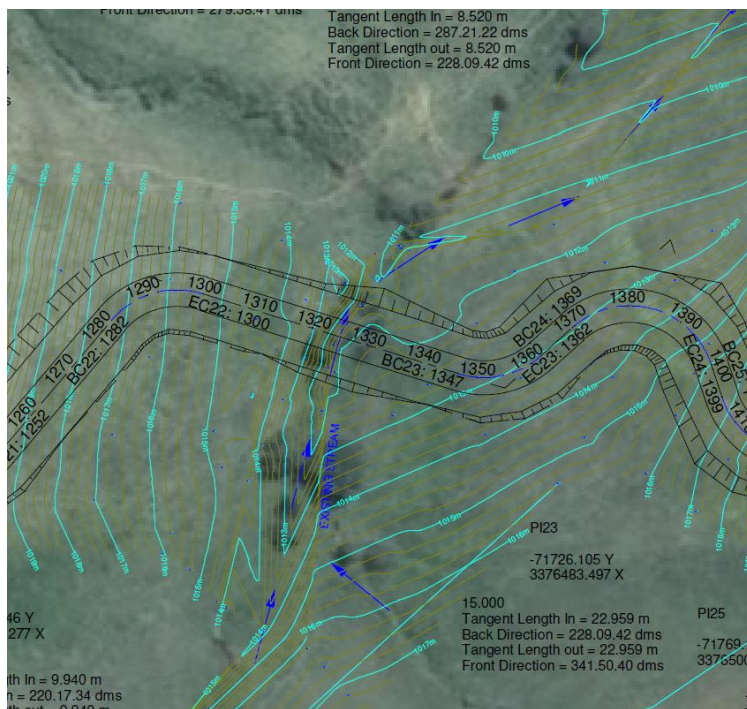


Figure 2. Preferred Layout after recommended re-alignment



4.3 No-Go Alternative

Leaving the current access track and watercourse crossing in its current condition is regarded as the No-Go Alternative. This alternative would have the least direct impact on the environment, as none of the construction related impacts would occur. Indirectly however, this alternative may eventually result in local community continue to be cut off from amenities or the loss of life during flood events. This alternative may also result in the complete erosion of the watercourse and eventual wash-away of the rock and stone crossing point. It is unlikely that the road is heavily utilised by vehicles, but the government and the municipality's responsibility to its constituents remains. The No-Go Alternative has therefore not been assessed.

4.4 Preferred Alternative

Considering the site and the technological alternatives which are available, and the feasibility of each, the preferred alternative is, therefore, the site and preferred technological alternative as proposed in the development proposal description ([Section 1.3](#)). As the only feasible option, only the preferred alternative has been assessed.

5 Public Participation Process

5.1 Objectives of the Public Participation Process

The objectives of the public participation process (PPP) are to:

- Identify and inform potential IAPs of the proposed development
- Provide them with the opportunity to register any issues or concerns regarding the proposal, and
- Identify mitigatory and management options to address issues and concerns raised, where appropriate.

5.2 Details of the PPP

In undertaking the public participation process, all known, relevant facts pertaining to the proposed project were made available to registered and identified IAPs so that they could participate in a meaningful manner. The approach included:

- Ongoing technical liaison with relevant local municipal officials and the project facilitators regarding the proposed development
- Preparing a Background Information Document, (BID), for circulation to IAPs. (Refer to Appendix D)
- Identifying potential IAPs during discussions with the project facilitators and representatives
- Giving written notice to organs of the state (municipality, DWS) having jurisdiction over the proposal
- Giving written notice to Non-Governmental Organisations (NGO), Community Based Organisations (CBO) etc. who might have an interest in the proposal
- Placing an advert in a local newspaper (Ilanga Newspaper on the 26/11/2020) calling for IAPs not previously identified to identify themselves and make an input into the process (see copy of advert in Appendix D).
- Keeping IAPs informed, keeping a register of all IAPs and allowing them the opportunity to make comment on the proposed activity (see table below of registered IAPs)
- The Draft Basic Assessment will be made available for 30 days to all identified Stakeholders and placed at the Umzimkhulu Municipal Library for comments.



The following IAPs were identified or identified themselves:

Organisation	Contact Person	Contact Details
Department of Water and Sanitation	Ms RJ Madibe	Tel: 031 336 2700 / 2765 Mngoma-Madibe Jabulile Mngoma-MadibeJ@dws.gov.za
Department of Environment Forestry and Fisheries (DEFF) Forestry Regulations and Support	Ms Karen Govender	kgovender@environment.gov.za Tel: 033 392 7739; Fax: 033 342 8783 P/Bag X 9029, Pietermaritzburg, 3200
Ezemvelo KZN Wildlife	Nerissa Pillay	Nerissa.pillay@kznwildlife.com PO Box 13053, Cascades, 3202
KZN Department of Transport Transportation Engineering Sub-Directorate	Michele Schmid Judy Reddy Roy Ryan	michele.schmid@Kzntransport.gov.za judy.reddy@kzntransport.gov.za Private Bag X 9043, Pietermaritzburg, 3200 Tel: 033 355 8600; Fax: 033 342 3962 Ref: T10/2/2/3922/2
Eskom	M. Nicol	Nicolm@eskom.co.za P O Box 66, New Germany, 3620 Tel: 031 710 5404 MtawalNP@eskom.co.za
Telkom SA SOC Limited Network Engineering and Build Eastern Region Wayleave Management Section	S. Mchunu	Private Bag X 54326, Durban, 4000 Tel: 033 342 1591; Fax: 033 345 6126 wayleaves2@telkom.co.za PortiaN2@openseve.co.za
Amafa	Bernadet Pawandiwa Annie van de Venter Radford	amafaddps@amafapmb.co.za bernadetp@amafapmb.co.za
Ingonyama Trust Board	Suewellan Ellis	EllisS@ingonyamatrust.org.za
Ward Councillor Ward 12	Mr M Ndobe	Ndobem@umzimkhulum.gov.za Tel: 073 826 1582
Harry Gwala District Municipality	Mrs Thuthukile Ngcobo Sithole	Water Services Department Research, Planning & Design Unit Administrative Assistant Tel No.: 039 834 3939/2485 Email: ngcobot@harrygwalam.gov.za

5.3 Summary of the Issues Raises by IAPs

Comments received have been included in the Comments and Response Report (CRR) (Appendix D). These comments are documented individually with a response to each identified issue also provided in the CRR.

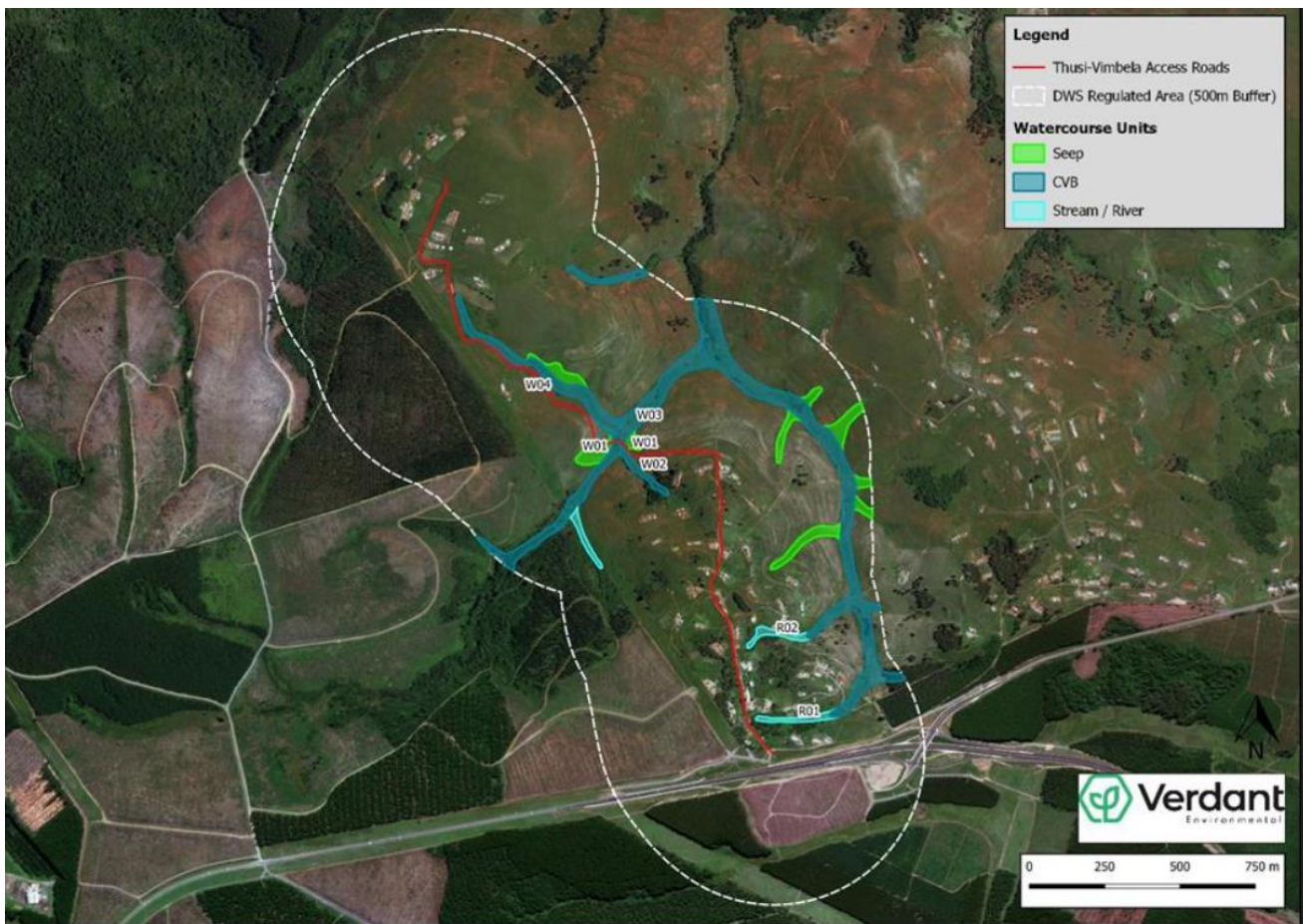


6 The Receiving Environment (All Alternatives)

6.1 Geographical and Physical Environments

6.1.1 Topography and Hydrology

The project area is located within the T52G quaternary catchment of the uMvoti to Umzimkhulu Water Management Area (11). The proposed road alignment traverses perennial watercourses of the Umbunbane River. The study area is undulating with a central valley incised by the Umbunbane River. The project high point is at 1050 masl to the north west and the low-point of 1020masl is located at the Umbunbane River crossing at the mid-point, 30°30'22.82"S 29°44'48.81"E.



6.1.2 Geology and Soils

The study area comprises Pietermaritzburg Formation, Vryheid Formation and Volksrust Formation.

The Pietermaritzburg formation is mainly composed of dark colored carbonaceous and silt-rich shale rocks, siltstone, and mudstone with subordinate sandstone layers. This formation is only found in the easternmost section of the north eastern facies succession and is not well studied due to poor outcrops and exposures. The exposed outcrops quickly erode due to the sub-tropical climate of KwaZulu-Natal where the deposits of this formation are exclusively found. Sporadic fossil plant material and various invertebrate trace fossils have been found, and the depositional environment is thought to be shallow marine.



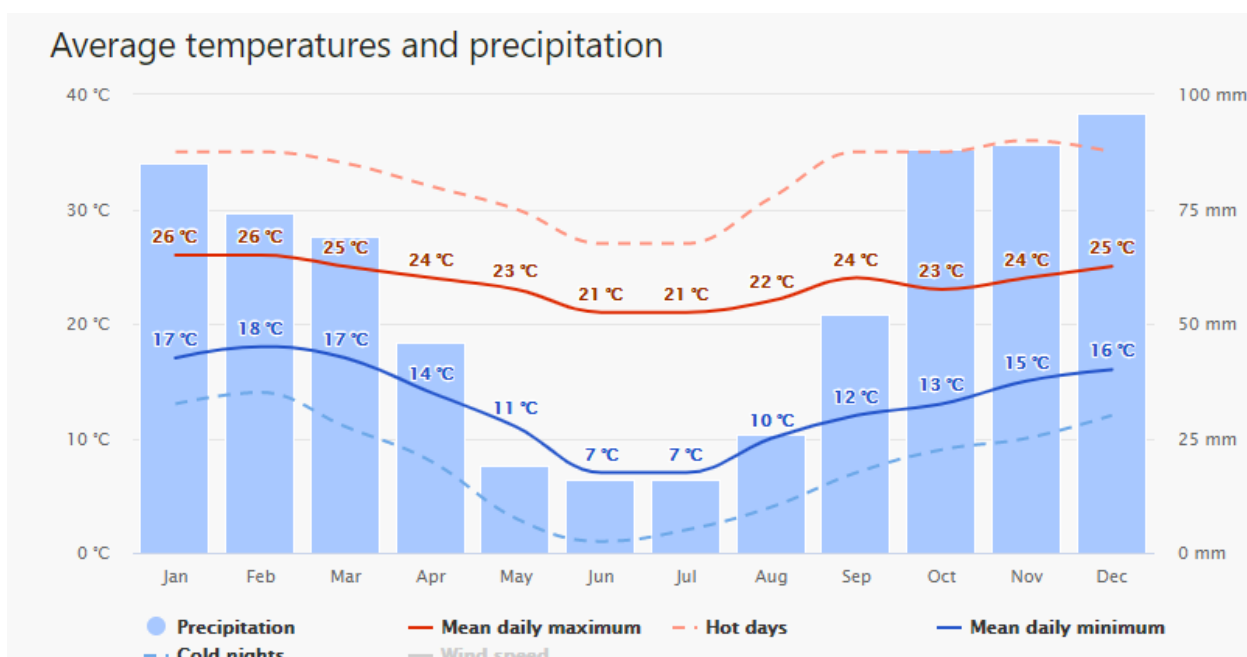
The Vryheid formation are dominated by fine-grained mudstone, carbonaceous shale with alternating layers of bituminous mudstone coal seams, and layered deposits of coarse grained, bioturbated immature sandstones respectively. The rock sediments are predominantly arranged in upward-coarsening cycles, although some fining-upward cycles are found in this formation's easternmost deposits. The alternating rock types observed in the Vryheid Formation indicate seasonal variations of storms and fairer weather in a pro-delta setting. The carbonaceous shales were formed below the water surface in anoxic conditions and the coal formed from compacted plant matter deposited at the bottom of peat swamps.

The Volksrust formation mainly comprises of silt rich, grey to black shale containing thin, bioturbated siltstone or sandstone lenses. Deposits of this formation interfinger laterally with the underlying Vryheid Formation and overlying Beaufort Group rock deposits. The rock sediments are fine-grained overall, indicating that the rock sediments were deposited in both lacustrine to lagoonal and shallow coastal settings.

Geology and Soils – Specific Site Conditions
A shallow water table (less than 1.5m deep) occurs on site.
Dolomite, sinkhole or doline areas were not found on site.
Seasonally wet soils (often close to water bodies) occur on site.
Unstable rocky slopes or steep slopes with loose soil were not found on or near the site.
Dispersive soils (soils that dissolve in water) are not likely to occur on site.
Soils with low clay content (clay fraction more than 40%) occur on site.
No other unstable soil or geological features were noted on site.
An area sensitive to erosion was noted

6.1.3 Climate

The study area mainly receives summer rainfall with some winter rainfall. Infrequent frosts do occur. Some valleys are sheltered and may show weak rain shadow effects. The average annual precipitation ranges from 700mm to 1100mm. Temperatures are variable with winter temperatures close to 0°C and summer temperatures in excess of 30°C being a common occurrence.



Blue bars - median monthly precipitation.
 Upper and lower red lines – mean daily maximum and minimum temperature
 MAP – Mean Annual Precipitation
 MAT – Mean Annual Temperature



7 Biological Environment

7.1 Flora and Fauna

According to The Vegetation of South Africa, Lesotho and Swaziland, the vegetation in the study area can be classified as Midlands Misbelt Grassland (Gs9). The vegetation and landscape features comprise hilly and rolling landscapes mainly associated with a discontinuous east-facing scarp formed by dolerite intrusions. Dominated by forbe-rich, tall, sour *Themeda triandra* grasslands transformed by the invasion of native Ngongoni grass (*Aristida junciformis*). Only a few patches of the original species rich grasslands remain. The conservation status of this vegetation unit is considered Endangered with a conservation target of 23%. No protected trees or indigenous forests were identified on site or within the construction footprint. Invasive plants species were noted to have established nearer to disturbed settlement areas and comprises Black Wattle, (*Acacia Mearnsii*), Bugweed (*Solanum mauritianum*), Lantana (*Lantana Camara*) and Peanut Butter Cassia (*Senna didymobotrya*).

The open grasslands adjacent drainage valleys and the perennial Umbunbane River vegetation is likely to provide habitat for faunal species such as avifauna, reptiles and amphibians. Domestic livestock also graze in this area.

Invasive plants species were noted to have established adjacent to existing tracks and nearer to disturbed settlement areas. These invasives comprised Black Wattle, (*Acacia Mearnsii*), Bugweed (*Solanum mauritianum*), Rag weed (*Ambrosia artemisiifolia*) and Bracken fern (*Pteridium aquilinum*).

Edwards (2021) explains that the study area is characterised by numerous springs, riparian habitats and seeps within the upper reaches of the T52G quaternary catchment of the Umbunbane River. Valley bottom wetlands that were identified within the lower lying portions of the site were moderately degraded due to erosion and impacts associated with active subsistence of rural settlements. Rural housing stands are positioned near the tops of the ridges in this steep landscape, which along with grazing pressure and forestry activities, have altered the hydrological conditions of the catchment and resulted in numerous erosion features in the landscape. Vegetation communities within these systems are similar to those identified within the channelled valley bottom wetlands identified in the study area, which are dominated by hydrophytic grass species and sedges/plants in the wetter zones as follows:

Andropogon appendiculatus;

Helichrysum cephaloideum;

Aristida junciformis;

Helichrysum sutherlandii;

Brachiaria serrata;

Juncus oxycarpus;

Carex sp;

Juncus punctorius;

Cymbopogon caesius;

Loudetia simplex;

Cyperus articulatus;

Microchloa caffra;

Cyperus congestus;

Pennisetum setaceum;

Cyperus latifolius;

Pteridium aquilinum;

Cyperus rotundus;

Setaria nigrirostris;

Cyperus triangularis;



Sporobolus africanus;
Eragrostis capensis;
Themeda triandra.
Eragrostis plana;

Directly to the north of the N2/R56 interchange are two Riparian B channel systems, with very similar characteristics. These systems have their sources at springs that flow immediately into a steep, wooded riparian habitat with a series of rocky cascades and sandy beds along their courses. The riparian systems lose confinement as their gradient eases closer to the primary channelled valley bottom system that receives their flows. At this point the vegetation characteristics change from woody riparian species to hygrophilous grasses and sedges.

7.1.1 Wetland and Aquatic Assessment

From the Wetland and Ecological Assessment undertaken by Verdant (2021), the infield sampling of soil and vegetation in conjunction with the recording of diagnostic topographical / terrain indicators and features, enabled the delineation of the following distinct watercourse units:

- R01: Seasonal Stream (Riparian B Channel)
- R02: Seasonal Stream (Riparian B Channel)
- W01a: Seep
- W01b: Seep
- W02: Channelled Valley Bottom Wetland
- W03: Channelled Valley Bottom Wetland
- W04: Channelled Valley Bottom Wetland

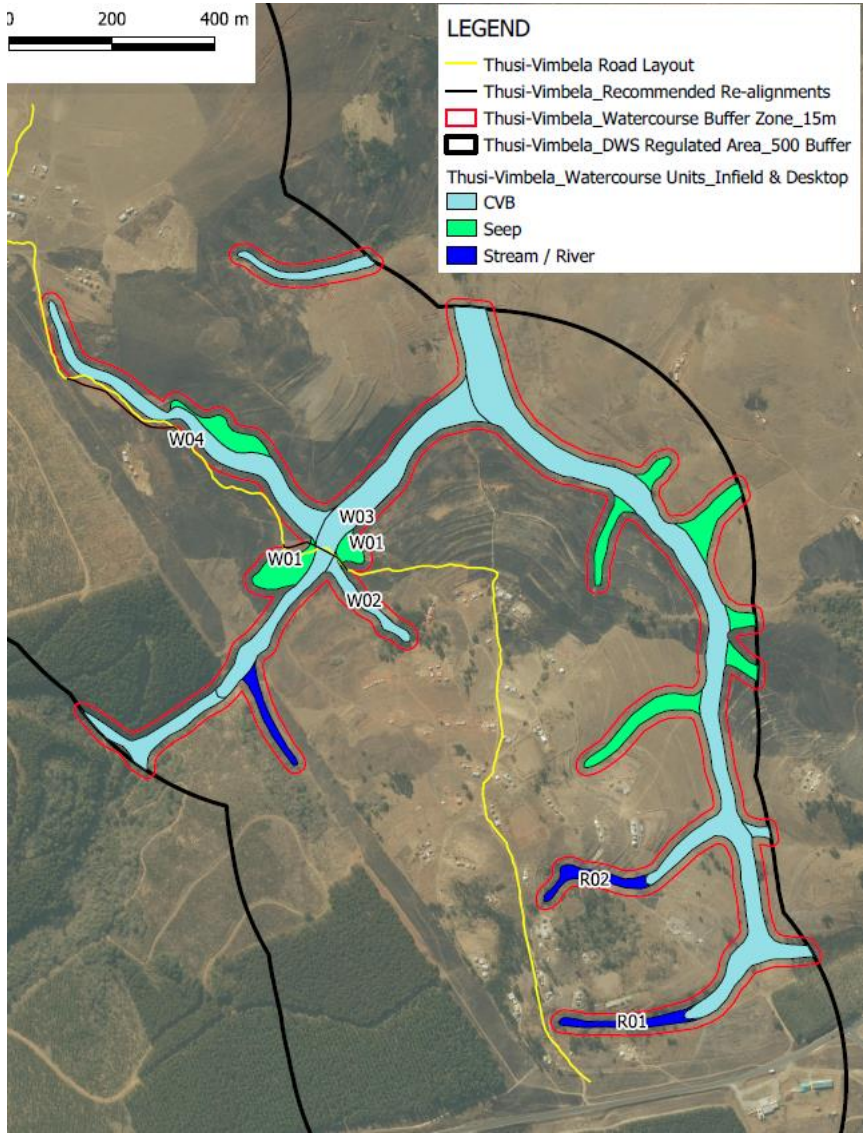


Figure 3. Watercourse units

Present Ecological State

PES is defined as a measure of the similarity or deviation from a natural or reference state (Macfarlane et al., 2020). Considering that most of the unit catchments are planted to forestry, or utilised for subsistence agriculture and grazing lands, the local hydrology and groundwater systems that drive the wetlands have been altered. The buffer zones and the wetlands themselves are used for grazing purposes, which has led to erosion, and the vegetation of the wetlands is moderately to highly impacted. The PES of the wetlands was assessed as ranging between being moderately / largely modified and falling within PES Class C to D (Edwards, 2021).

Unit	Hydrology Impact Rating	Geomorphology Impact Score	Water Quality Impact Score	Vegetation Impact Score	Overall PES Score & Rating
W01a	2,9	2,1	1,0	4,0	2.5 (C)
W01b	1,9	2,2	1,7	2,9	2.1 (C)
W02	4,0	2,2	4,5	5,8	4.1 (D)
W03	4,9	3,8	4,8	6,2	4.9 (D)
W04	4,3	3,7	3,8	3,8	4.0 (C)

Figure 4. Wetland PES



The relevant reach of the stream units were assessed as being largely modified and falling within PES Class D. A summary of the relevant impact and health scores is provided in Table 7 below. The major impacts are associated with the direct disturbance of the bed and banks of the habitat by locals and livestock using the springs for the provision of their water, and the infestation of alien invasive plants and tree species into the habitat (Edwards 2021).

River Unit	Instream Habitat Integrity Score	Riparian Habitat Integrity Score	Overall PES Score	PES Rating & Class
R01	4.22 (D)	4.68 (D)	4.4 (D)	Largely Modified (D)
R02	4.61 (D)	4.34 (D)	4.5 (D)	Largely Modified (D)

Figure 5. River PES

Ecological Importance and Sensitivity

Ecological Importance (EI) is the expression of the importance of wetlands and rivers in terms of the maintenance of biological diversity and ecological functioning at a local and landscape level (Kotze et al., 2020). Ecological Sensitivity (S) refers to ecosystem fragility or the ability to resist or recover from disturbance (Kotze et al., 2020). The EIS scores were interpreted using the categories and descriptions provided below.

Importance Category	
Very Low	0-0.79
Low	0.8 – 1.29
Moderately-Low	1.3 – 1.69
Moderate	1.7 – 2.29
Moderately-High	2.3 – 2.69
High	2.7 – 3.19
Very High	3.2 - 4.0

Figure 6. EIS Categories

Units W01a, W01b and W04 were assessed as being of high EIS and the most important units because of the high biodiversity maintenance scores. The rest of units were assessed as being of moderate EIS this was primarily driven by the occurrence of springs and the steady water supply that provides significant benefits to the local community.

River Unit	Biodiversity Maintenance Importance Score	Regulating Services Importance Score	Provisioning and Cultural Services Importance Score	Ecological Sensitivity	Integrated EIS Score	Integrated EIS Rating
W01a	3.1	1.2	0.6	1	3.1	High
W01b	3.1	1.2	0.6	1	3.1	High
W02	1.4	1.5	1.7	1	1.7	Moderate
W03	1.7	1.4	1.7	1	1.7	Moderate
W04	3.0	1.5	1.6	1	3.0	High

Figure 7. Wetland EIS

The stream units were both assessed as being of low EIS. The results of the EIS assessment are shown in Table 12 below. This is because instream and riparian habitat diversity is low and the seasonal flow conditions mean that instream aquatic species richness is not high, and species are not intolerant. The streams do provide some water supply benefits although still assessed as being of low importance.



River Unit	River EIS	Regulating Services Importance Score	Provisioning and Cultural Services Importance Score	Integrated EIS Score	Integrated EIS Rating
R01	1.0	1.1	1.2	1.2	Low
R02	1.0	1.1	1.2	1.2	Low

Figure 8. River EIS

Recommended Ecological Category

The recommended ecological category (REC) is the target or desired state of freshwater ecosystems required to meet water resource management objectives and quality targets. It is determined through the consideration of the PES, EIS and realistic opportunities to improve the PES that is driven by the context / setting.

Watercourse Unit	PES	EIS	REC	Management Objective
W01a	2.5 (C)	High	B/C	Regional: Improve Project level: Maintain
W01b	2.1 (C)	High	B/C	Regional: Improve Project level: Maintain
W02	4.1 (D)	Moderate	D	Regional: Maintain Project level: Maintain
W03	4.9 (D)	Moderate	D	Regional: Maintain Project level: Maintain
W04	4.0 (C)	High	B/C	Regional: Improve Project level: Maintain
R01	4.4 (D)	Low	D	Regional: Maintain Project level: Maintain
R02	4.5 (D)	Low	D	Regional: Maintain Project level: Maintain

Figure 9. Recommended Ecological Category

Data adapted from: Wetland and Ecosystem Impact Assessment Report Riparian Assessment Report for the Proposed Thusi Access Road, Verdant, February 2021.

7.2 Socio-Economic Environment

The village of Thusi is proposed to be serviced by the new road construction. The study community is considered rural in nature. The mid-section of the proposed road is new road construction which is undeveloped and un-occupied. Subsistence agricultural grazing land is the dominant landuse, with smaller subsistence cultivated gardens closer to homesteads. The socio-economic structure can be classified as primarily low income. At present, there is no formal infrastructure to cater for high rainfall periods and the road and watercourse crossing. The watercourse crossings is currently not suitable for pedestrian and vehicular passage, and as such poses a safety risk for the local community. The proposed road will provide an efficient and safe link to exiting infrastructure.



7.3 Culture and Heritage Environments

No sites of cultural significance were noted within the site or within close proximity to the site. The project details and reports will be submitted to AMAFA for comment.

In line with Section 38(1) of the National Heritage Resources Act, Act 25 of 1999, (NHRA), the project does trigger the activities identified. Heritage Impact Assessments (HIAs) as required by the National Environmental Management Act 107 of 1998 as amended (NEMA), in compliance with Section 38 of the National Heritage Resources Act 25 of 1999 (NHRA). Section 38(1) of the NHRA may require such an assessment in case of:

- the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
 - the construction of a bridge or similar structure exceeding 50m in length;
 - any development or other activity which will change the character of a site –
 - (i) exceeding 5 000m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven or subdivisions thereof which have been consolidated within the past five years; or
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority (PHRA);
- the re-zoning of a site exceeding 10 000m² in extent; or
 - any other category of development provided for in regulations by SAHRA or a PHRA.

8 Environmental Impact Assessment of the Proposed Activity

8.1 Geographical and Physical Environments

8.1.1 Topography and Drainage

The topography of the area will not be affected because of the site specific nature of the proposed development and a road construction is unlikely to alter the topography. Drainage will be affected during construction and post construction if not correctly managed. The proposed development traverses watercourse units, and will thus affect the flow of the perennial tributary of the uMbumbane River during construction. This will be managed through the use of temporary stream diversion, if required. The flow will not be stopped at any time, and, where possible, the majority of the construction work will take place within the dry season.

8.1.2 Hydrology and Geomorphology

Edwards (2021) explains that with poor mitigation, increased rates of erosion and sedimentation are likely to occur because of the direct impacts to wetland soils, flow, and vegetation during the construction phase.

Firstly, increased rates of erosion and sedimentation within the channel is inevitable as a result of the clearing of vegetation, the loss of soil cohesion and disturbance to the channel bed within the construction corridor. The objective of mitigation should be to minimise the intensity and extent of such impacts through the application of appropriate method statements and the installing of appropriate



erosion and sediment control measures. If such measures are poorly implemented, gulley erosion could occur which may migrate upstream, with resulting sedimentation downstream.

The need to create a dry working area within the wetlands to establish the culverts will necessitate some form of temporary flow diversion and/or impoundment and bunding of the working areas. Temporal impoundment will result in the temporary cessation of flow downstream and some reduced soil saturation rates for a short period. Furthermore, there is also a risk that the removal of the dam could send a pulse of water down through the system that could lead to gully erosion and associated impacts. Similarly, flow diversions will likely increase the velocity of water that could result in gully formation.

The abovementioned impacts could result in the loss of wetland habitat within the gullies and reduced soil saturation rates in the vicinity of the gullies, as well as reduced soil saturation rates in areas that experience increased sedimentation and vegetation smothering and burial. Both impacts will ultimately result in the degradation of local wetland vegetation and habitat integrity. The impacts of the changes in hydrological regime (i.e. increased inundation upstream or decreased saturation downstream) could cause small changes in plant species composition that favour those species more tolerant of the new hydrological conditions.

8.1.3 *Geology and Soils*

The proposed development will have little to no negative impact on the geology and soils of the area. Construction activities may temporarily increase erosion during excavation for road and bridge structures, and stream sedimentation and may also result in soil compaction both within, and alongside the watercourse. Access to culvert bases areas and across the perennial tributary of the uBumbane River may increase erosion and sedimentation during construction. The relevant mitigation measures to help to reduce this impact, will be incorporated into the project EMPr.

8.1.4 *Climate*

No measurable affect is anticipated.

8.2 Biological Environments

8.2.1 *Direct ecosystem modification*

The proposed road will cross a network of wetlands that includes Units W01a, W01b, W02 and W03. In addition, a small section of Unit W04 will be encroached on. The establishment of the new road crossing will involve the direct and permanent infilling of intact wetlands, riparian zones and channels (bed and banks) within the road development footprint and the direct and temporary modification of wetlands, riparian zones and channels in the vicinity of the road footprint during the construction phase.

8.2.2 *Habitat connectivity and edge disturbance*

During the construction phase, there will be a temporary reduction in ecological connectivity within Wetland Units W01 and W02 because of clearing and earthworks activities along the construction corridor that bisects the wetland units. The constriction corridor will physically block the movement of fauna. In addition, construction activities are likely to result in elevated levels of noise and dust, and increased alien invasive plant invasion due to soil disturbance and vegetation clearing and/or poor rehabilitation. Such indirect impacts could result in the alteration in the composition of biotic communities, habitat degradation, and/or the displacement of fauna sensitive to human presence and noise pollution.



According to the KwaZulu-Natal Terrestrial Systematic Conservation Plan (TSCP) (EKZNW, 2016), a portion of the Thusi-Vimbela Access Roads traverses areas of CBA: Irreplaceable. It is evident from the TSCP (EKZNW, 2011) spatial coverage that the 'CBA' status assigned to these areas is both species and ecosystem driven due to the potential presence of the *Arthroleptella ngongoniensis*, *Euonyma lymnaeiformis*, *Scelotes bourquini* and Midlands Mistbelt Grassland.

8.2.3 Water Pollution

Contaminants such as hydrocarbons and solids may be generated during the construction phase from several potential sources (examples include petrol/diesel, oil/grease, paint, cement/concrete and other hazardous substances). In this case, the volume of hazardous pollutants is expected to be low. If pollutants are washed into the local wetland and donga units, there will be negligible impacts to the downstream freshwater ecosystems in terms of changes in plant species composition and impacts to freshwater fauna. The most sensitive habitats to pollution are the downstream aquatic habitats. However, these habitats are located some distance downstream and the wetland is likely to trap and filter the pollutants.



8.3 Socio-Economic Environment

8.3.1 Social

The proposed construction of a formal Thusi Access Road will benefit the local community, as it will enable a formal vehicular, pedestrian and livestock passage across the existing gravel road during moderate to high rainfall events. The local community may also benefit through the provision of 20 temporary employment opportunities during the construction phase. The safety of the local inhabitants will need to be considered during construction and access to the construction area must be regulated.

Proposed Development Socio-Economic Statistics	
Expected capital value of the activity on completion:	R6 531 992.91
Expected yearly income that will be generated by or as a result of the activity:	R6 531 992.91
The activity will contribute to service infrastructure.	
The activity is a public amenity.	
Number of new employment opportunities that will be created in the development phase of the activity:	17 people
Expected value of the employment opportunities during the development phase:	R 335, 000.00
Percentage of this which will accrue to previously disadvantaged individuals:	100 %
Number of employment opportunities that will be created during the operational phase of the activity:	0
Expected current value of the employment opportunities during the first 10 years:	N/A
Percentage of this will which accrue to previously disadvantaged individuals:	100%

8.3.2 Roads and Traffic

The proposed road upgrade and construction provides a formal gravel access road with complete watercourse drainage infrastructure. The proposed road traverses an unnamed local road starting at 30°30'56.34"S 29°45'8.11"E and ending at 30°29'54.94"S 29°44'27.47"E. Access to the site is expected to be gained off the National Route 2 at existing access point at 30°31'0.63"S 29°44'48.42"E. The proposed development is unlikely to impact any provincial or national road, although slow turning construction traffic and the generation of dust may have an impact during construction phase. The size of the trucks transporting goods to and from the site will not exceed the size of the trucks utilised in the construction of the provincial roads itself. The trucks will also comply with local road regulations and weight specifications. The number of trucks gaining access to the site is not known at this stage. If the speed (and weight) limits on the haulage roads are adhered to no impacts different from the impact of the current traffic are envisaged. This will include the generation of noise, dust and potential safety issues.

8.3.3 Emissions – Waste, Smoke, Dust, Noise

Dust and noise emitted during construction from vehicle movement and excavations are inevitable but will be of short duration. Dust originating from the gravel roads giving access to the site is likely to occur especially if construction takes place during the drier winter months as is recommended to help to reduce the impacts on the watercourse. If the amount of dust on the gravel access road becomes a problem, the road may be sprayed with water to settle the dust (as a last resort only). Any water utilised must be from an approved source with documentation as proof.

It is not expected that the emissions will cause an impact on the residents in the surrounding areas or exceed the levels stipulated in the National Environmental Management: Air Quality Act (No.39 of 2004).



Waste generated during construction will include construction rubble and general waste, all of which will be disposed of at the nearest registered landfill site. The Harding Waste Disposal Facility is the nearest waste disposal facility. Recycling must be encouraged.

8.3.4 Heritage and Cultural Environment

A phase one cultural heritage survey of the proposed Thusi-Vimbane Access Road, Umzimkhulu Local Municipality, identified no heritage sites on the footprint. Some heritage sites are located in the nearby town of Umzimkhulu but these are not threatened by the proposed development and no mitigation is necessary. The area is also not part of any known cultural landscape. There is no general heritage or archaeological reason why development may not proceed as planned. The phase one paleo desktop study indicates that the footprint is situated in an area with a high fossil sensitivity. A ground survey by an accredited palaeontologist, and a protocol of finds, will be required before development may proceed. Attention is drawn to the South African Heritage Resources Act, 1999 (Act No. 25 of 1999) and the KwaZulu-Natal & Amafa Research Institute Act (Act no 5 of 2018) which, requires that operations that expose archaeological or historical remains and fossils should cease immediately, pending evaluation by the provincial heritage agency.

A Palaeontological Impact Assessment was requested for the proposed construction of an access road to link Thusi to Vimbela and the N2 highway near Gaybrook and Vimbane in the Kokstad area, southwestern KwaZulu Natal. In order to comply with the regulations of the South African Heritage Resources Agency (SAHRA) in terms of Section 38(8) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA), a desktop Palaeontological Impact Assessment (PIA) was completed for the proposed project. The proposed site lies on the non-fossiliferous dolerite of the Jurassic dykes (volcanic origin), and on the dark grey shales of the Volksrust Formation (Ecca Group, Karoo Supergroup). The latter is potentially fossiliferous but fossils are extremely rare and scattered because this stratum represents deep water deposits. Fragmentary plants of the *Glossopteris* flora might occur, or the marine bivalve, *Megadesmus*, could occur. Therefore, a Fossil Chance Find Protocol should be added to the EMP. Based on this information it is recommended that no palaeontological site visit is required unless fossils are found once excavations for the road foundations have commenced.

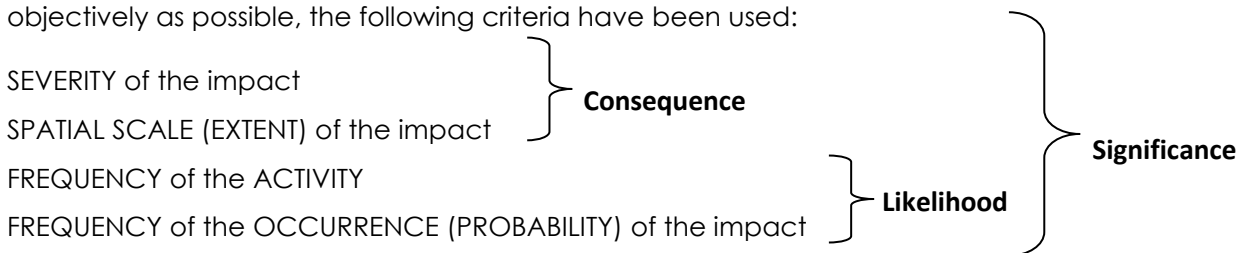


9 Environmental Risk Assessment Methodology

The purpose of the Environmental Risk Assessment (ERA) is to identify the potential environmental risks and impacts associated with the installation of the proposed road. This provides a basis to identify the key risk drivers and make informed decisions on the way forward in order to ensure that these risks do not result in unacceptable social, environmental or reputational risk.

9.1 Risk Assessment Methodology

The potential environmental impacts associated with the proposed development have been evaluated using a recognised semi-quantitative risk assessment methodology. This methodology has been developed to ensure all procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment as set out in National Environmental Management Act (No. 107 of 1998) [NEMA] 24(4b) are met. In order to assess the significance as objectively as possible, the following criteria have been used:



This system derives environmental significance on the basis of the consequence of the impact on the environment and the likelihood of the impact occurring. **Tables 4 to 8** describe the process in detail. The significance rating of potential risks is outlined in **Table 8**. Significance is calculated as the product of consequence and likelihood.

9.2 Determining Consequences

In terms of this project, consequence is determined based on the consideration of a combination of severity, extent and duration of the environmental impact. Consequence is determined as the average of the three values (i.e. (severity + extent + duration) / 3) (**Table 4**).

Table 4: Assessment of Consequences

Rating	Description		
	Severity	Spatial Extent (Scale)	Duration
1	Negligible / non-harmful / minimal deterioration	Within immediate area of activity	Less than 1 month / quickly reversible
2	Minor / potentially harmful / measurable deterioration	Surrounding area within project boundary	Less than 1 year / quickly reversible
3	Moderate / harmful / moderate deterioration	Beyond project boundary	More than 1 year / reversible over time
4	Significant / very harmful / substantial deterioration	Regional / provincial	More than 10 years / reversible over time / life of project or facility
5	Irreversible / permanent	National / international	Beyond life of project of facility / permanent

9.3 Determining Likelihood

Likelihood considers the frequency of the activity together with the probability of an environmental impact associated with that activity occurring. Likelihood is determined as the average of the two values (i.e. (frequency + probability) / 2) (**Table 5**).

**Table 5: Assessment of Likelihood**

Rating	Description	
	Frequency	Probability
1	Less than once a year	Almost impossible
2	Once in a year	Unlikely
3	Quarterly	Probable
4	Weekly	Highly likely
5	Daily	Definite

9.4 Determining Overall Impact Significance

Overall significance is determined using professional judgement based on a clear understanding of the nature of the impact, its severity, the duration and degree to which the impact can be reversed as well as the extent of the impact. These aspects define the impacts consequence which must be considered against the likelihood of the impact occurring in order to assign an overall significance of the impact. Significance ratings of the identified impacts have been based on the implementation of mitigation measures as per the proposed Environmental Management Plan (EMPr).

The status of the impact must be defined, and the impact can either be positive, neutral or negative. A positive impact is where an activity will have a social / environmental / economic benefit. A neutral impact is when an activity will have no effect. A negative impact is when an activity will be harmful socially / economically / environmentally. Significance should be assigned according to the definitions in the table below (**Table 6**).

Table 6: Description of Impact Significance

Rating	Significance	Description
L (1 – 4.9)	Insignificant	A potential issue which was found to have no impact when evaluated
LM (5 – 9.9)	Very Low	Impacts will be site specific and temporary with no mitigation necessary
M (10 – 14.99)	Low	Impact will have a minor influence on the biophysical and/or social environment, and will not have an influence on the decision.
MH (15 – 19.9)	Medium	Impact will have a moderate influence on the biophysical and/or social environment, and it should have an influence on the decision unless it is mitigated.
H (20 – 25)	High	Impact will have a major influence on the biophysical and/or social environment, and would influence the outcome regardless of any possible mitigation.



10 Environmental Impact Assessment Matrix

The purpose of the environmental impact assessment (EIA) is to identify the potential impacts and associated risks posed by the project on the environment. The outcomes of the EIA will provide a basis to identify the key risk drivers and make informed decisions on the way forward in order to ensure that these risks do not result in unacceptable social, environmental or reputational risk to the Umzimkhulu Local Municipality.

The potential environmental impacts in terms of NEMA are assessed in the risk matrix below (**Table 7**) according to the criteria described in the consequences, likelihood and significance tables provided above. The reasons for selecting each is covered under the qualification of the potential impact; the associated recommendations, findings and / or mitigation measures are also provided.

Table 7: Environmental Impact Risk Matrix



Qualification of Potential Impacts (Nature)		Severity	Extent	Duration	Consequence (S+E+D)/3	Frequency	Probability	Likelihood (F+P)/2	Significance (No Mitigation) (Cxt)	Significance (With Mitigation)	Impact Assessor Comments and Recommendations:
10.1 Geographical and Physical Environments (Preferred Alternative)											
Decrease in surface water quality	A decrease in surface water quality is expected during the construction phase owing to an accumulation of suspended sediment and excess sediment deposition from potential sediment release associated with the construction methodology.	3	2	2	2.3	2	3	2.5	5.8 LM	-	The proposed construction methodology is considered "best practice" as it makes use of the most appropriate technologies. Notwithstanding the above, mitigation and rehabilitation measures and recommendations will be incorporated into the Environmental Management Programme. For example: Construction within the active channel will require temporary stream diversion to help reduce erosion and sedimentation. Any excavations or excavated material must be protected from erosion if it is anticipated that it will remain exposed for any length of time. Stockpiles of this material must be positioned away from the watercourse, keeping the topsoil and the sub-soil separate (where applicable). As a result, a long-term decrease in surface water quality is not expected; the impact is likely to be very low (negative).
	With mitigation:	2	2	2	2	2	2	2	-	4 L	
Impact on surface water flow	Alteration of surface flow conditions owing to physical obstruction of the road and proposed watercourse crossing.	2	3	2	2.3	2	3	2.5	5.8 LM	-	



Qualification of Potential Impacts (Nature)		Severity	Extent	Duration	Consequence (S+E+D)/3	Frequency	Probability	Likelihood (F+P)/2	Significance (No Mitigation) (Cxl)	Significance (With Mitigation)	Impact Assessor Comments and Recommendations:
	With mitigation:	2	2	2	2	2	3	2.5	-	5LM	<p>The proposed construction is not expected to significantly affect surface water flow during the construction phase. This phase is expected to be short in duration, and management measures must be employed during the construction phase to help to ensure that the surface water flow is maintained as far as possible.</p> <p>The impact post mitigation is expected to be very low/(negative). This impact can be reduced further if construction takes place within the dry months.</p>
Increased sedimentation	Increased sedimentation of the watercourses owing to disturbances / alterations to the bed and banks could potentially cause an increase in transportation and deposition of sediments to the watercourse, leading to a reduction in water quality.	3	3	3	3	3	3	3	9 LM	.	<p>The probability for this impact to occur will be increased during high rainfall periods. The potential impact of sedimentation is expected to be of a very low significance if the recommendations in the EMPr are implemented. In addition, construction will be limited to the dry (low rainfall) winter months. Based on the above, the potential impact on surface water resources is likely to be very low (negative).</p>
	With mitigation:	2	2	2	2	2	3	2.5	.	5 LM	



Qualification of Potential Impacts (Nature)			Severity	Extent	Duration	Consequence (S+E+D)/3	Frequency	Probability	Likelihood (F+P)/2	Significance (No Mitigation) (Cxl)	Significance (With Mitigation)	Impact Assessor Comments and Recommendations:
Decrease in groundwater quality	in water	The installation method could result in contamination of ground water arising from the construction plant, oils/grease, cement, building materials etc.	3	3	3	3	3	3.5	3.25	9.75 LM	.	There is the potential for contamination of groundwater owing to uncontrolled releases of cement, hydraulic fluid, oil, diesel during construction. The potential impact of groundwater contamination is expected to be of a low (negative) significance if the recommendations in the EMPr are not implemented and very low after mitigation. Please refer to recommendations regarding hazardous material and spill management in the EMPr.
		With mitigation:	2	2	2	2	2.5	2.5	2.5	.	5 LM	
Decrease in groundwater quality	soil and water	The development of a construction site could result in damage to soil and ground water contamination.	3	2	2	2.3	3	3	3	7 LM	.	



Qualification of Potential Impacts (Nature)		Severity	Extent	Duration	Consequence (S+E+D)/3	Frequency	Probability	Likelihood (F+P)/2	Significance (No Mitigation) (Cxt)	Significance (With Mitigation)	Impact Assessor Comments and Recommendations: - Degree to which impact can be managed - Possible Mitigation Measures and level of residual risk Positive and Negative Impacts
	With mitigation:	2	2	2	2	2	2	2	.	4 L	The clearing and development of the site may cause soil compaction and contamination, and ultimately erosion, as well as ground water contamination as a result of the movement of heavy vehicles and the uncontrolled release of hydrocarbons, cement and other hazardous materials. Bunded areas must be set up from the outset to help to ensure all spillages are contained. Any spillages must be immediately cleaned up and disposed of at the nearest registered landfill only, with proof of correct disposal. During construction continuous monitoring of containers, bunded areas, surface runoff and air emissions must be undertaken by a responsible person. The proposed development areas must be kept to a minimum where possible. At the site camp and ingress and egress points of the culvert, topsoil should be removed from the proposed construction site prior to establishment. The compacted soil must be ripped up, the topsoil replaced, and rehabilitated with indigenous vegetation once construction has been completed. This impact is of low (negative) significance without mitigation, and of very low, (no) significance if mitigated.



Qualification of Potential Impacts (Nature)		Severity	Extent	Duration	Consequence (S+E+D)/3	Frequency	Probability	Likelihood (F+P)/2	Significance (No Mitigation) (Cxl)	Significance (With Mitigation)	Impact Assessor Comments and Recommendations:
Increased soil erosion	The road construction and watercourse crossing installation method may exacerbate erosion of the perennial tributary river banks and bed.	3	3	2	2.6	4	3	3.5	9.1 LM	.	There is the potential for soil erosion to occur because of excavation activities within the perennial tributary of the uMbumbane River during construction. The probability for this impact to occur is increased during high rainfall periods. The impacts from erosion are expected to be very low pre-mitigation and very low if the soil erosion and surface water protection measures recommended in the EMPr are implemented (negative) . In addition, construction of the crossings will be limited to the dry winter months.
	With mitigation:	2	2	2	2	3	3	3	.	6 LM	
Compaction of soils	Compaction of the soils from heavy vehicles.	2	2	2	2	3	3	3	6LM	.	



With mitigation:												
	2	2	2	2	3	3	3	.	6LM			
<p>Compaction of soils in and along the edges of the watercourse and wetlands must be minimised as far as possible. Areas excluded from development (riparian and wetland zones) must be clearly demarcated and indicated to construction staff. Compacted soil must be broken up, raked loosely, and then re-vegetated or packed with large boulders and stones (within the river bed). Use of gabions and reno mattresses must also be considered. The impact is thus expected to be very low (negative) both pre and post mitigation.</p> <p>Crossing of the river must be avoided as far as possible to help limit impact. If crossing is necessary, simple surface and temporary structures to limit damage to the river must be utilised. Reno mattresses, gabion baskets and biodegradable sand bags may be utilised. No plastics must be utilised. At completion, ALL imported material must be cleared up. All waste must be correctly disposed of with proof of correct disposal.</p>												

10.2 Biological Environments (Preferred Alternative)

Ecological impacts – river banks and beds	Modifications to the channel banks and beds from the construction process may result in a loss of wetland habitat. Wetland habitat will be disturbed and potentially lost	5	2	4	3.6	4	5	4.5	16.5 MH	.		
<p>Revegetation of adjacent areas disturbed during construction, but not permanently transformed. Limit the construction footprint. Implement erosion and sediment control measures. The topsoil must be removed and stockpiled / stored separately from the</p>												



Qualification of Potential Impacts (Nature)		Severity	Extent	Duration	Consequence (S+E+D)/3	Frequency	Probability	Likelihood (F+P)/2	Significance (No Mitigation) (Cxt)	Significance (With Mitigation)	Impact Assessor Comments and Recommendations:
	during construction. The additional permanent habitat loss will be minimal, as the site is disturbed by the existing crossing.										
	With mitigation:	2	1	4	2.3	4	3	3.5	.	5.8 M	underlying sub-soil prior to construction on the banks of the watercourse. The backfill process must ensure that the material is returned in the same order that it was removed i.e. the sub-soil replaced first, followed by the topsoil material closer to the surface. The impact is thus expected to be Moderate (negative) , pre mitigation and low post mitigation.
Ecological impacts – alien invasive vegetation	Disturbance of vegetation and the encroachment of alien invasive plant species	4	4	4	4	4	4	4	16 M	.	It is critical that vegetation is established over disturbed areas immediately after construction is complete. Groundcover that were removed during the initial phases of construction along the river banks must be replanted on completion of construction. An approved local indigenous grass seed mixture must be applied in conjunction with the sods if it is deemed that establishment of the vegetation from the sods is unlikely to be successful. Pre mitigation the impact is expected to be medium and post mitigation low (negative) .
	With mitigation:	3	3	4	3.3 3	3	3	3	.	10 LM	
Ecological impacts – loss of wetland habitat	Disturbance of sections of riparian habitat.	4	2	3	3	2	3	3	9LM	.	



Qualification of Potential Impacts (Nature)	Severity	Extent	Duration	Consequence (S+E+D)/3	Frequency	Probability	Likelihood (F+P)/2	Significance (No Mitigation) (Cxl)	Significance (With Mitigation)	Impact Assessor Comments and Recommendations: - Degree to which impact can be managed - Possible Mitigation Measures and level of residual risk Positive and Negative Impacts
With mitigation:	3	2	2	2.3	3	3	3	.	7 LM	<p>The proposed working area must be clearly demarcated prior to the commencement of the works. The width of the working area within the watercourse must be kept to a strict minimum to ensure that impacts on the freshwater systems and the watercourse are minimised. All activities must be restricted to within the demarcated working area.</p> <p>The reinstatement of the watercourse and banks must be carried out immediately after the culverts have been installed. The backfill material must be returned in the same order that it was removed i.e. the sub-soil replaced first, followed by the topsoil material closer to the surface. Re-vegetation must be carried out immediately after backfilling, and the establishment of alien invasive plants must be prevented. The use of engineered mechanisms (reno and gabions), biodegradable sand bags or large rocks and boulders, will also assist in stabilising the soil and river beds and banks. The impact is then expected to be kept within the very low range (negative) pre-mitigation, and very low if mitigation measures are employed.</p>



Qualification of Potential Impacts (Nature)		Severity	Extent	Duration	Consequence (S+E+D)/3	Frequency	Probability	Likelihood (F+P)/2	Significance (No Mitigation) (Cxt)	Significance (With Mitigation)	Impact Assessor Comments and Recommendations:
10.3 Socio-Economic Environment (Preferred Alternative)											
Potential Safety and security impact	Exposure of local residents (and livestock) to potentially dangerous site conditions (open excavations) during construction	4	3	2	3	3	3	3	9 LM	.	The proposed crossing will expose the local residents to potentially dangerous conditions during the construction phase if excavations are left accessible and unguarded during construction hours and after hours. Local residents must be informed of the proposed construction activities and warned to stay away. Where possible the site must be fenced off. Communication keeping the local residents/IAPs informed will be important throughout the construction phase. The impact is likely to be very low (negative) pre and post mitigation.
	With mitigation:	2	3	2	2.3	3	2	2.5	.	5.8 LM	
Changes in the social fabric	The influx of construction workers may create social issues such as conflict, conflict for work, changes in financial outlook, changes in domestic cohesion.	3	3	2	2.6	3	3	3	8 LM	.	The proposed development will expose the local residents to potential conflict situations if construction work is only available to some, and if social and domestic cohesion is compromised. It is suggested that the construction workers be advised of these pitfalls in order to help avoid them. This impact is expected to be of very low (negative) significance both pre and post mitigation.
	With mitigation:	2	2	2	2	3	2	2.5	.	5 LM	



Qualification of Potential Impacts (Nature)		Severity	Extent	Duration	Consequence (S+E+D)/3	Frequency	Probability	Likelihood (F+P)/2	Significance (No Mitigation) (Cxl)	Significance (With Mitigation)	Impact Assessor Comments and Recommendations:
Improved social amenity	The construction of the proposed road will provide improved and safer access for residents, pedestrians, school children.	5	3	4	4	4	4	4	16 MH	.	The current crossing may become difficult and dangerous to cross during high rainfall and flood events, the construction of a road causeway will improve safety and access for local residents. This is a positive impact of Medium Significance.
	With mitigation: Not required										
Construction Phase Waste, and Effluent,	Waste may be produced during the construction phase	3	3	3	3	5	4	4.5	13.5 M	.	A small quantity of waste in the form of construction rubble, overburden and general waste may be created during the construction phase. This will be disposed of appropriately at the nearest registered waste disposal site. Low impact is expected during construction and very low post mitigation.
	With mitigation:	2	2	2	2	4	3	3.5	.	7 LM	
Construction Phase Emissions and Noise	Noise and Dust may be created by the construction vehicles and machinery	3	3	3	3	4	3	3.5	10.5 M	.	



Qualification of Potential Impacts (Nature)	Severity	Extent	Duration	Consequence (S+E+D)/3	Frequency	Probability	Likelihood (F+P)/2	Significance (No Mitigation) (Cxl)	Significance (With Mitigation)	Impact Assessor Comments and Recommendations: <ul style="list-style-type: none"> - Degree to which impact can be managed - Possible Mitigation Measures and level of residual risk Positive and Negative Impacts
With mitigation:	2	2	2	2	3	2	2.5	.	5 LM	Noise and dust may be created by construction vehicles during the construction phase (the access roads are dirt and gravel roads). This must be prevented by ensuring that the vehicles travel at reduced speeds. Wetting the roads and dusty areas down is an option but must only be considered as a last resort in extreme cases. Noise must be reduced through the use of silencers and correctly maintained equipment. These impacts are likely to be of short and intermittent duration, and are not considered intolerable. There are residents and a school located close to the site, so noise and dust must be correctly managed. The impact is thus low during construction and very low (negative) post mitigation.



10.4 Cumulative Impacts

The majority of the impacts were found to be of a medium to low negative significance, prior to mitigation. Cumulatively, the impacts assessed are not expected to significantly alter the environmental condition, especially if the proposed mitigation measures are employed and implemented.

10.5 Degree to which the Impacts can be reversed

Most of the impacts identified can be reversed. Impacts such as loss of wetland over the proposed Access Road alignment can not be reversed, however impacts can be mitigated. In some instances, a positive outcome is anticipated such as improved, safer vehicular and pedestrian access across the uMbumbane River.

10.6 Degree to which Impacts may cause Irreplaceable Loss of Resources

None of the impacts will result in an irreplaceable loss of resources.

10.7 Outcome of the Site Selection Matrix

The preferred site and technology/design was assessed. The proposed development is site specific as an efficient link across a perennial tributary of the uMbumbane River. The proposed Thusi Access has been sited to optimise the existing vehicular transportation routes and foot paths through the valley and improve the safety of motorists and pedestrians.

11 Environmental Impact Statement

11.1 Assumptions, Uncertainties and Gaps in Knowledge

Detailed description of the construction methodology (aside from the diagrams provided in Appendix B) was not available.

11.2 Summary of Findings

11.2.1 Summary of the Positive and Negative Impacts and Risks

Please refer to Table 8 overleaf.


Table 8: Summary of Impacts and Risks (Preferred Alternative)

Potential Environmental Impacts	Qualification of Potential Impacts (Nature)	Impact Significance
Decrease in surface water quality	A decrease in surface water quality is expected during the construction phase owing to an accumulation of suspended sediment and excess sediment deposition from potential sediment release from erosion associated with the construction activities.	Very low (negative) during and with mitigation measures Very low (negative) .
Impact on surface water flow	Alteration of surface flow conditions owing to physical obstructions.	The potential impact on surface water resources is likely to be very low (negative) prior to mitigation. The impact post mitigation is expected to be very low (negative) .
Increased sedimentation	Increased sedimentation of the watercourses owing to disturbances / alterations to the bed banks could potentially cause an increase in transportation and deposition of sediments to the watercourse, leading to a reduction in water quality.	Very low significance if the recommendations in the EMP are implemented. The potential impact on surface water resources is likely to be very low (negative) prior to mitigation.
Decrease in groundwater water quality	The installation method could result in contamination of ground water arising from the construction plant, oils/grease, cement, building materials etc.	The potential impact of groundwater contamination is expected to be of a very low (negative) significance if the recommendations in the EMP are not implemented and very low after mitigation.
Decrease in soil and groundwater water quality	The development of a construction site could result in damage to the soil and ground water contamination.	This impact is of very low (negative) significance without mitigation, and of no significance if mitigated..
Increased soil erosion	The installation method may exacerbate erosion of the river banks and bed.	The potential impact on surface water resources is likely to be very low (negative) both pre and post mitigation.
Compaction of soils	Compaction of the soils from heavy vehicles.	The impact is expected to be very low (negative) both pre and post mitigation.
Ecological Impact – temporary loss of habitat	Disturbance of the aquatic ecosystem and loss of adjacent wetland fringes as a result of a construction activities.	The impact is expected to be Moderate (negative) without mitigation and low with mitigation. Low .
Ecological impacts – river banks and beds	Modifications to the channel banks and beds from the construction process.	The impact is expected to be low (negative) , pre-mitigation and low post mitigation.
Ecological impacts – alien invasive vegetation	Disturbance of vegetation and the encroachment of alien invasive plant species	Pre-mitigation, the impact is expected to be medium (negative) . The post mitigation impact is expected to be low .


Table 8: Summary of Impacts and Risks (Preferred Alternative)

Potential Environmental Impacts	Qualification of Potential Impacts (Nature)	Impact Significance
Ecological impacts – loss of wetland habitat	Loss of sections of wetland habitat.	The impact is expected to be kept within the low range (negative) pre-mitigation, and very low if mitigation measures are employed.
Potential Safety and security impact	Exposure of local residents (and livestock) to potentially dangerous site conditions (open excavations) during construction	The impact is likely to be very low (negative) pre and post mitigation.
Changes in the social fabric	The influx of construction workers may create social issues such as conflict, conflict for work, changes in financial outlook, and changes in domestic cohesion.	This impact is expected to be of very low (negative) significance both pre and post mitigation.
Improved social amenity	The construction of the causeway over the river will provide improved and safer access for residents.	This is a positive impact of Medium Significance.
Construction Phase Waste, Effluent, Emissions and Noise	Waste may be produced during the construction phase	Low impact during construction and very low (negative) impact post mitigation.
	Noise and Dust may be created by the construction vehicles and machinery	Low impact during construction and very low (negative) impact post mitigation.

11.3 Key Impact Management Measures

11.3.1 Mitigation Measures to be included in EMPr

Mitigation measures as presented in the Risk Assessment, (**Table 7**) (amongst others) above will be included in the EMPr.

11.3.2 Mitigation Measures Identified in Specialist Reports

- Wetland and Aquatic Assessment Report for the Proposed Thusi Access Road, Verdant, February 2021.
- Heritage Impact Assessment for the Thusi Access Road, Active Heritage, January 2021
- Palaeontological Impact Assessment for the Thusi Access Road. February 2021
- Geotechnical Assessment for the Thusi Access Road, Letsatsi (November 2020)



11.4 Aspects Conditional to the Findings

No conditional aspects have been identified.

11.5 Reasoned Opinion on Proposed Development

The Basic Assessment Study has made extensive use of desktop and field data, and input from IAPs, and reveals typical impacts associated with the proposed Thusi Access over a perennial tributary of the uMbumbane River.

The impact of the proposed development on the receiving biophysical environment will be permanent (lifetime of the facility) but low provided the development is implemented as proposed and all reasonable steps to implement the proposed development using standard best practices and that the proposed mitigations included in a comprehensive Environmental Management Programme (EMPr) are put in place and correctly adhered to.

The operational maintenance of the proposed road, particularly the watercourse crossing is vital to ensure the longevity of the development, as well as to help reduce potential operational impacts on the geophysical, biophysical and social environments.

The information contained in this report and the documentation attached hereto is sufficient to make a decision in respect of the activity applied for.

12 Conclusion

The proposed development site and their surroundings reveal signs of previous disturbance owing to current and previous uses and anthropogenic changes. From a biophysical perspective, the most significant factor to take into consideration is the disturbance of the perennial tributary of the uMbumbane River and associated wetland and watercourse habitats. This includes storm-water runoff and potential erosion during construction and prior to rehabilitation of the perennial tributary banks taking effect. The combination of these factors is a matter of some concern and allowances for these issues must be made in the comprehensive EMPr that must be put in place for the construction and operation of the infrastructure. Edwards (2021) explains that the impacts of the proposed development under a good mitigation scenario should be considered acceptable and there are no fatal flaws, on condition that the mitigation measures provided are strictly adhered to.

Considering the impacts associated with the proposed development, the following recommendations are provided:

- The requirement for additional specialist studies is not anticipated
- Implementation must follow the proposed EMPr and adhere to standard best practices
- All proposed mitigations or reasonable alternatives must be adopted
- During implementation continuous monitoring of containers, bunded areas, surface runoff and air emissions must be undertaken by a responsible person, appointed or approved by the Department of Economic Development, Tourism and Environmental Affairs, to ensure that specifications are being duly regarded.
- Regular construction monitoring will be required to measure compliance with mitigation measures and the project EMPr.

Provided that the recommendations and mitigation measures as proposed in this report and in the EMPr are implemented, it is the opinion of the EAP that the development may proceed as envisaged.



13 Timeframes

13.1 Environmental Authorisation Timeframes (if no Operational aspect)

- Period for which Environmental Authorisation is required: 5 years
- Date on which the Activity will be concluded: Unknown at this stage
- Date on which the Post Construction Monitoring Requirements will be finalised: Unknown

14 EAP Affirmation

Oath / Affirmation by the EAP:

The Environmental Assessment Practitioner hereby confirms that the information provided in this report is to our knowledge, correct, and includes all comments and inputs from IAPs, EAP responses to these comments, and recommendations from specialists (where relevant).

15 Financial Provisions

Details of any financial provisions for Rehabilitation (where applicable), closure, ongoing post decommissioning management of negative impacts: **Not available at this stage.**

Rehabilitation of the site will take place during and after construction during the environmental management process of the development. The cost of this process will be factored into the construction cost.

16 Any Other Specific Information

Additional information is provided in the attached appendices. Any further information can be requested from the EAP as necessary.

References

Mucina. L & Rutherford. MC (eds) 2006. *The Vegetation of South Africa, Lesotho and Swaziland*. Strelitzia 19. South African National Biodiversity Institute. Pretoria.

Wetland and Aquatic Assessment Report for the Proposed Thusi Access Road, Verdant, February 2021.

Heritage Impact Assessment for the Thusi Access Road, Active Heritage, January 2021

Palaeontological Impact Assessment for the Thusi Access Road. February 2021

Geotechnical Assessment for the Thusi Access Road, Letsatsi (November 2020)



Appendix A – Mapping

- Figure 1: Locality Plan
- Figure 2: Topocadastral Map
- Figure 3: Site Plan
- Figure 4: Cadastral Map
- Figure 5: Watercourses Map
- Figure 6: Quarternary Catchment Map
- Figure 7: EKZNW TSCP Map
- Figure 8: SANBI Vegetation Map
- Figure 9: Landuse
- Figure 10 Service Map

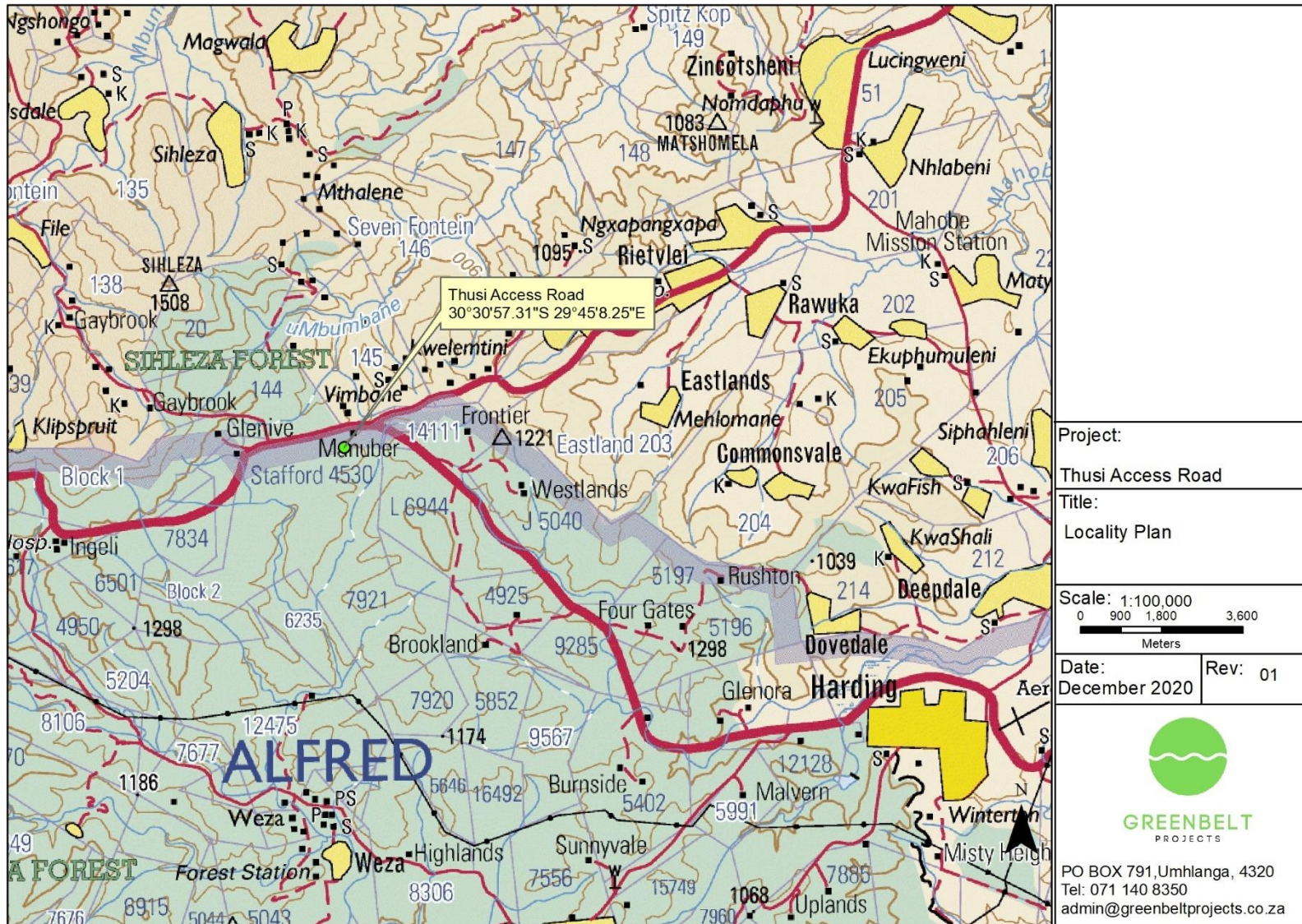


Figure 10: Locality Plan

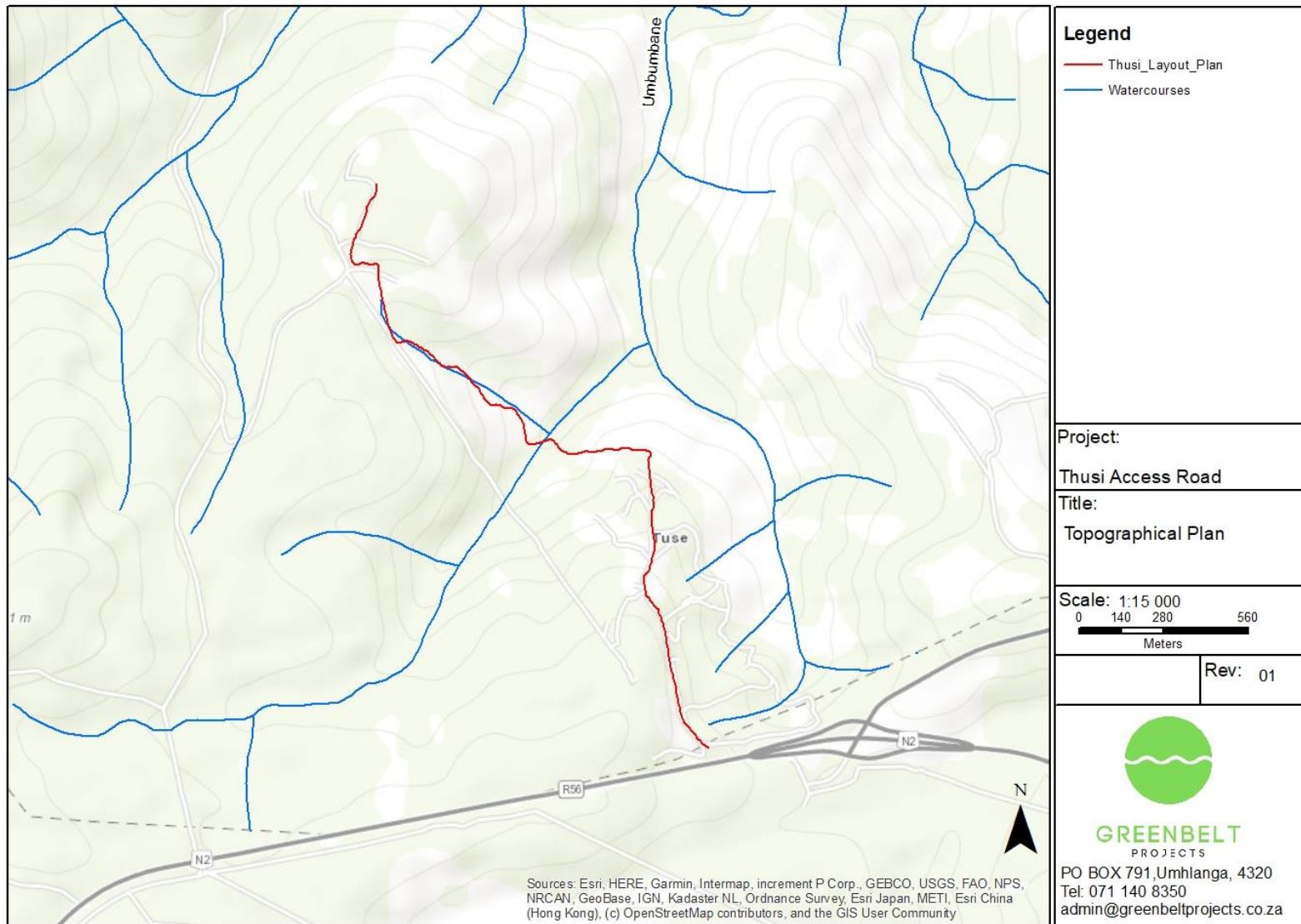


Figure 2: Topographical Plan

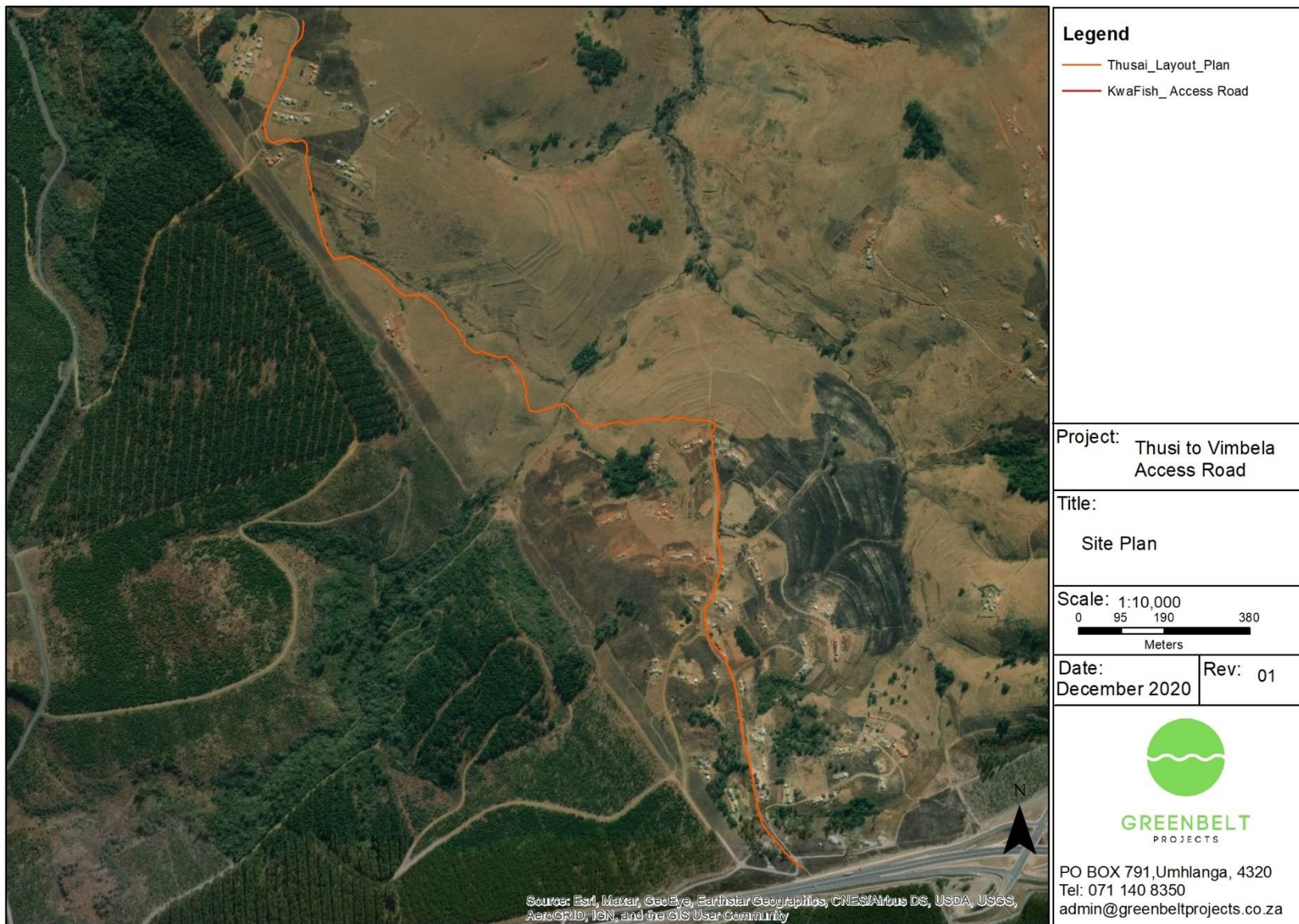


Figure 3: Site Plan (Preferred Alternative)

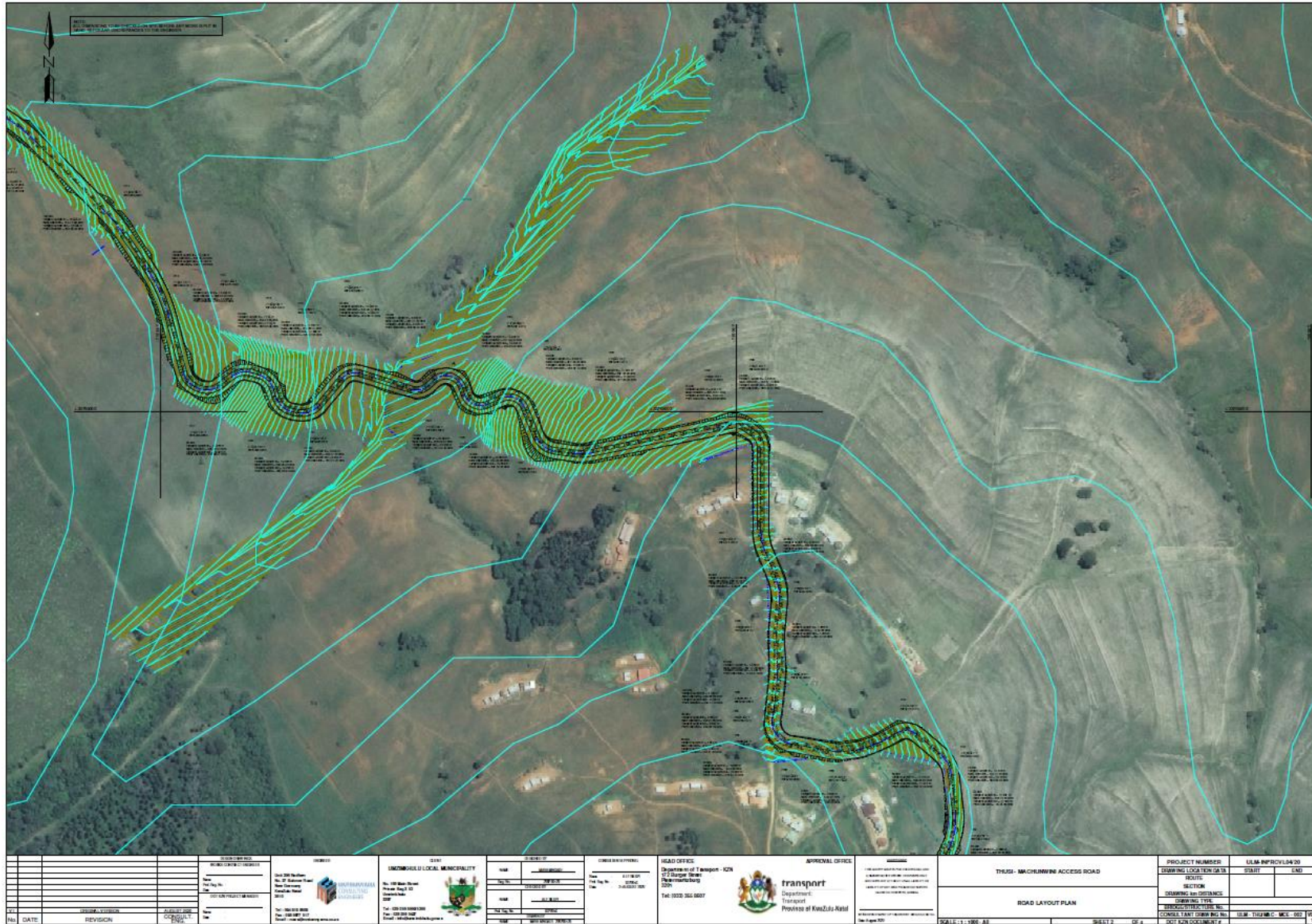


Figure 3a: Site Plan (Preferred Alternative)

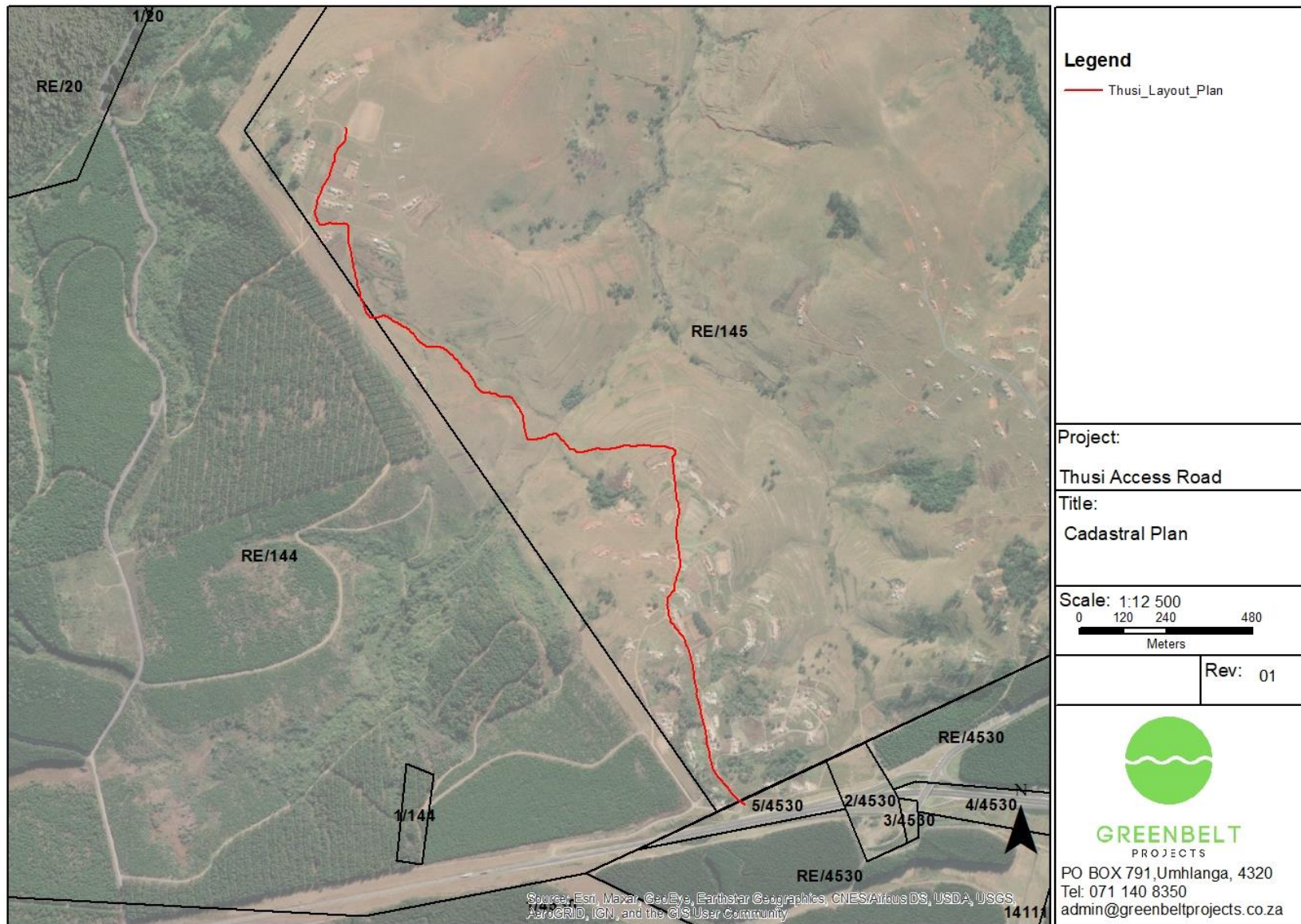


Figure 4: Cadastral Map

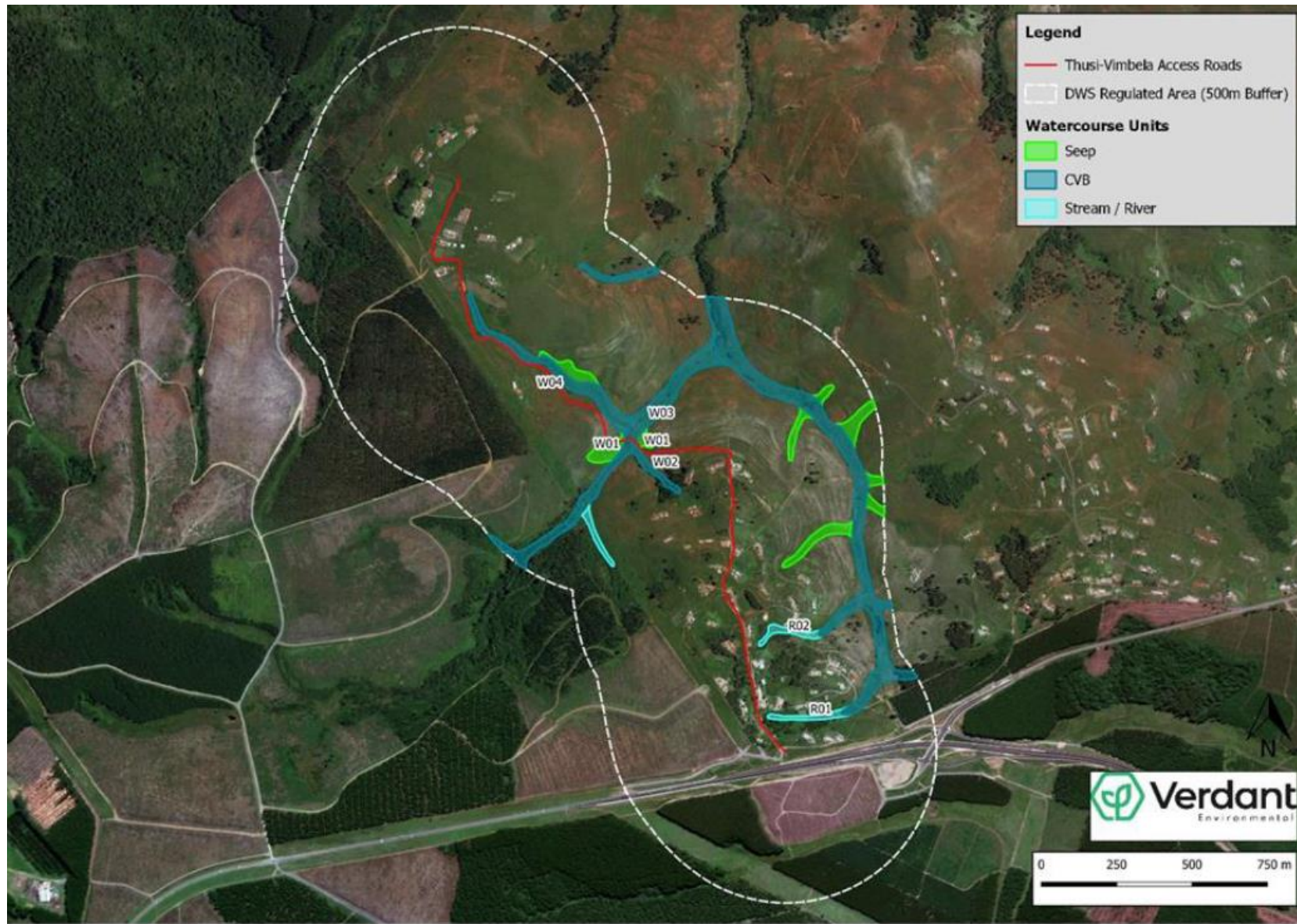


Figure 5: Watercourses

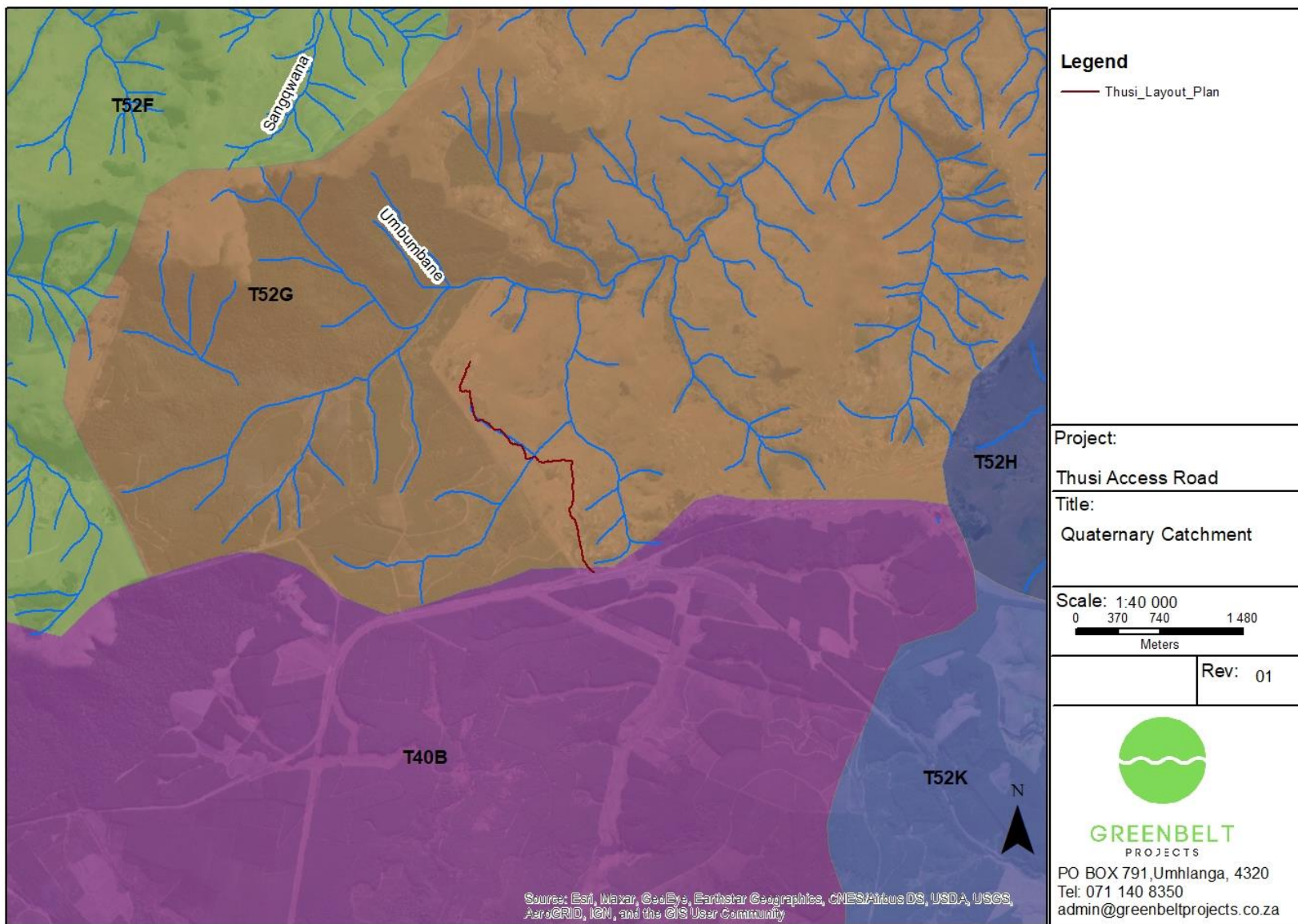


Figure 6: Quaternary Catchment Map

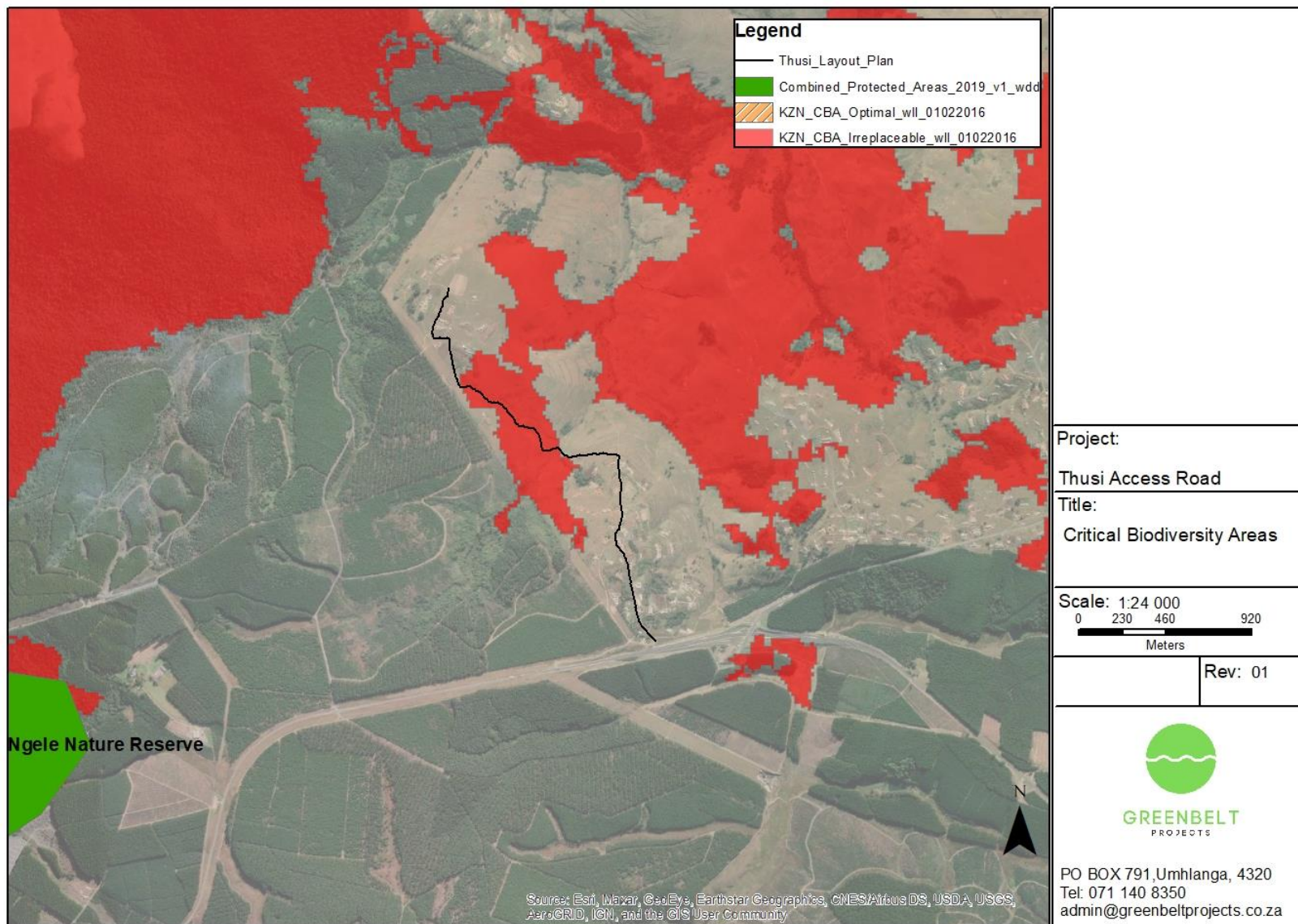


Figure 7: EKZNW Critical Biodiversity Areas (2010)

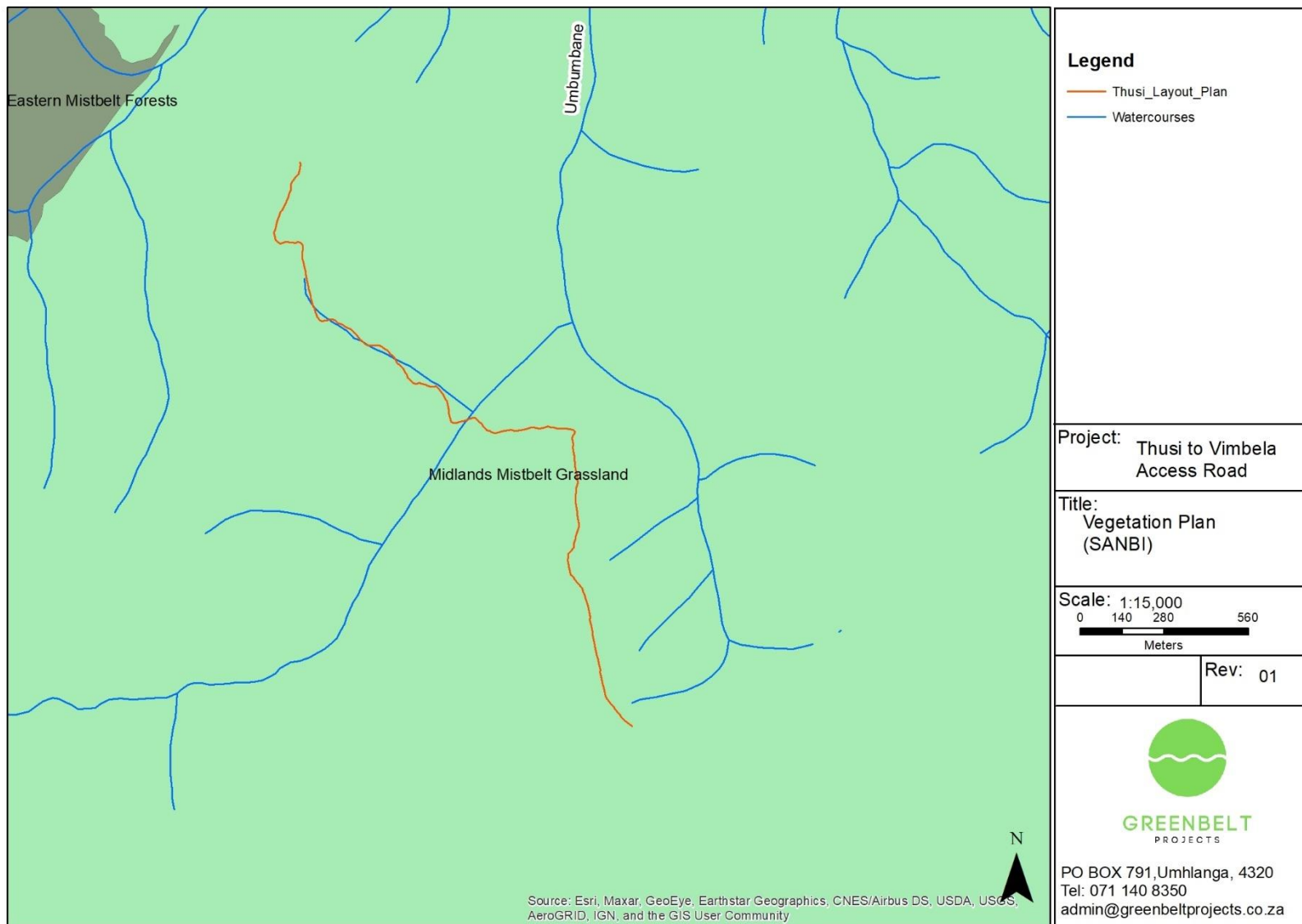


Figure 8: SANBI Vegetation Plan

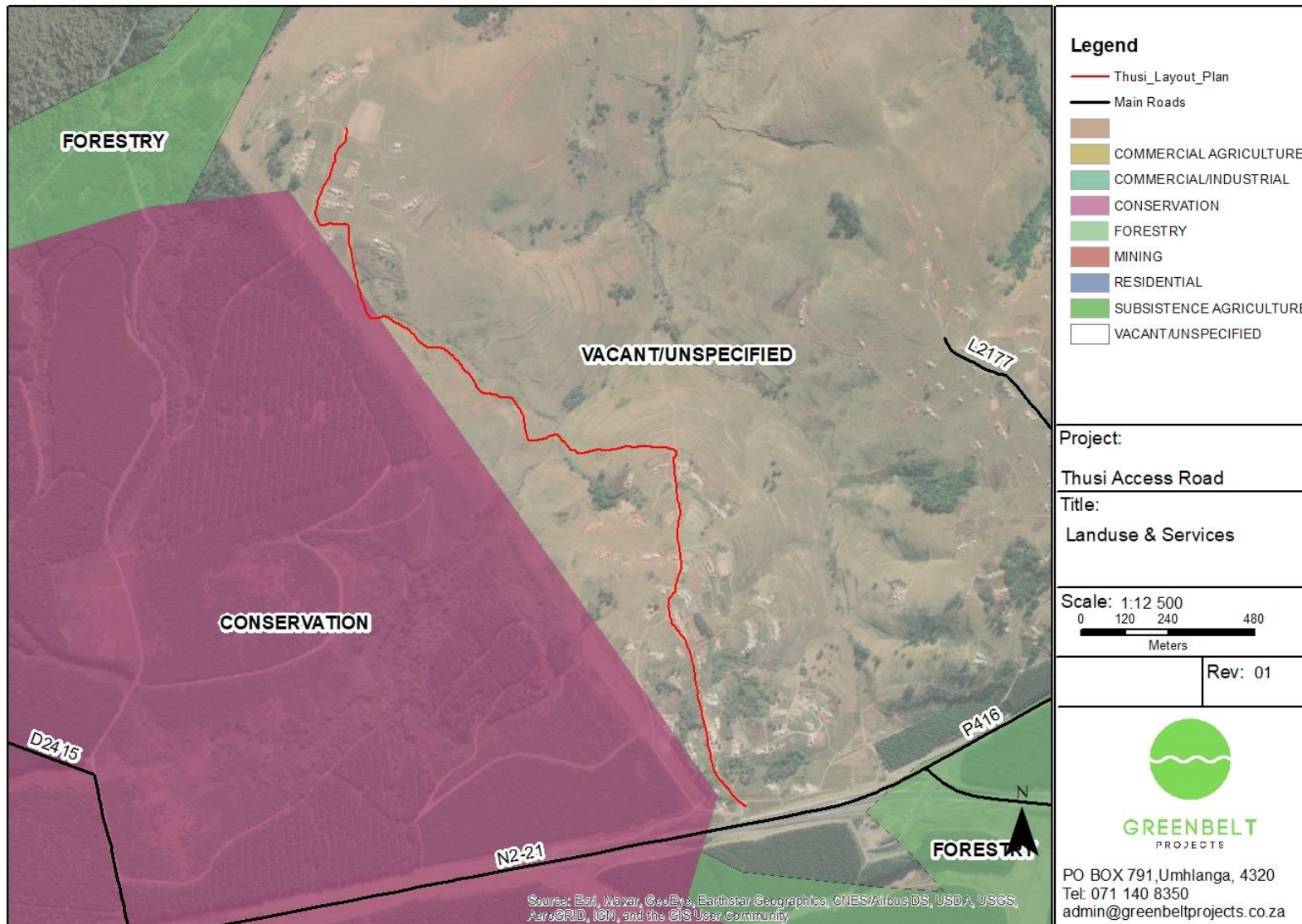


Figure 9: Landuse Map



Appendix B – Development Proposal (Diagram)

Thusi Access Road:



Appendix C – Specialist Investigations

Wetland and Aquatic Assessment Report for the Proposed Thusi Access Road, Verdant, February 2021.

Heritage Impact Assessment for the Thusi Access Road, Active Heritage, January 2021

Palaeontological Impact Assessment for the Thusi Access Road. February 2021

Geotechnical Assessment for the Thusi Access Road, Letsatsi (November 2020)



Appendix D – Public Participation

- Copy of Newspaper Advertisement
- Site Notices
- Background Information Document (BID)
- Correspondence with IAPs
- Stakeholder Meeting Minutes
- Comments and Response Report



Thusi Access Road

Comments and Response – Interested and Affected Parties

June 2021

Organisation	Contact Person	Contact Details
Department of Water and Sanitation	Navika Govender	Tel: 031 336 2700 / 2765 govender n1@dws.gov.za
Department of Environment Forestry and Fisheries (DEFF) Forestry Regulations and Support	Ms Karen Govender	kgovender@environment.gov.za Tel: 033 392 7739; Fax: 033 342 8783 P/Bag X 9029, Pietermaritzburg, 3200
Ezemvelo KZN Wildlife	Nerissa Pillay	Nerissa.pillay@kznwildlife.com PO Box 13053, Cascades, 3202
KZN Department of Transport Transportation Engineering Sub-Directorate	Michele Schmid Judy Reddy Roy Ryan	michele.schmid@Kzntransport.gov.za judy.reddy@kzntransport.gov.za Private Bag X 9043, Pietermaritzburg, 3200 Tel: 033 355 8600; Fax: 033 342 3962 Ref: T10/2/2/3922/2
Eskom	M. Nicol	Nicolm@eskom.co.za P O Box 66, New Germany, 3620 Tel: 031 710 5404 MtawalNP@eskom.co.za
Telkom SA SOC Limited Network Engineering and Build Eastern Region Wayleave Management Section	S. Mchunu	Private Bag X 54326, Durban, 4000 Tel: 033 342 1591; Fax: 033 345 6126 wayleaves2@telkom.co.za PortiaN2@openseve.co.za
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Ingonyama Trust Board	Suewellan Ellis	EllisS@ingonyamatrust.org.za
Ward Councillor Ward 12	Mr M Ndobe	Ndobem@umzimkhulum.gov.za Tel: 073 826 1582
Harry Gwala District Municipality	Mrs Thuthukile Ngcobo Sithole	Water Services Department Research, Planning & Design Unit Administrative Assistant Tel No.: 039 834 3939/2485 Email: ngcobot@harrygwalandm.gov.za



Department of Water and Sanitation (DWS)	Ms N Govender	Tel: 031 336 2700 / 2765 Govendern1@dws.gov.za
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Comments: re BID10/02/2021

Reference is made to the above-mentioned document received by this office on 05 February. This Department would like to bring to your attention the following in preparation of the Basic Assessment Report:

1. A Wetland/watercourse delineation and functionality assessment report is required which includes the location of the proposed activity in relation to any identified wetland/watercourses.
2. A Risk Assessment for watercourses within 500m of the proposed activity.
3. The management of solid waste and wastewater generated during construction and operational phases.
4. The Stormwater Management Plan/system during construction and operational phases.
5. Sewage management including but not limited to the type of sewage system to be used (municipal infrastructure or chemical toilets), proximity to watercourses. Please attach a Service Level Agreement and acceptance of such waste from the relevant service provider.
6. The source of water for potable and construction use.
7. The Environmental Management Programme for the construction and operation of the proposed activity
8. A Rehabilitation/Remediation Plan is required to address the measures proposed for rehabilitation of affected wetland/watercourses.
9. Erosion control measures to be implemented;
10. A Geotechnical study is required to ascertain the stability of bridges.
11. The Department would like to reiterate that it is the responsibility of the Applicant to identify all water uses triggered by the undertakings in terms of Section 21 of the NWA and ensure that all applicable water uses are authorised as such. The Applicant is required to consult the Department if clarity is needed with regards to Water Uses identification and Water Use Authorisations. These Water Uses are Listed in Table 1:

Table 1: Water Uses requiring Authorisation

s21(a)	taking water from a water resource;
s21(b)	storing water;
s21(c)	impeding or diverting the flow of water in a watercourse;
s21(d)	engaging in a stream flow reduction activity (currently only commercial afforestation);
s21(e)	engaging in a controlled activity – activities which impact detrimentally on a water resource (activities identified in s37(1) or declared as such under s38(1)) namely: <ul style="list-style-type: none"> > irrigation of any land with waste or water containing waste which is generated through an industrial activity or a waterwork; > an activity aimed at the modification of atmospheric precipitation; > a power generation activity which alters the flow regime of a water resource; or > intentional recharge of an aquifer with any waste or water containing waste
s21(f)	discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
s21(g)	disposing of waste or water containing waste in a manner which may detrimentally impact on a water resource;
s21(h)	disposing in any manner of water which contains waste from, or has been heated in, any industrial or power generation process;
s21(i)	altering the bed, banks, course or characteristics of a watercourse;
s21(j)	removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
S21(k)	using water for recreational purposes

This Department awaits a copy of the Basic Assessment Report.



<p>Response: All of the above points noted and will be incorporated into the DBAR and EMP if not already present.</p> <p>Chemical toilet facilities will be utilised for construction phase. The appointed contract will be responsible for the hiring and servicing of chemical toilets.</p> <p>The appointed contractor will determine the source of potable water and source of water for construction purposes. Should water abstraction be required, the necessary Section 21 activity will be registered with the Department of Water and Sanitation.</p> <p>The requirements for a WULA are noted and a Water Use Licence Application is being undertaken by the applicant for the project. An application has been submitted with the reference WU 20037.</p>		
Department of Environment Forestry and Fisheries (DAFF) Forestry Regulations and Support	Ms Karen Moodley BID Sent: 30 July 2019	ThembalakheS@daff.gov.za KarenM@daff.gov.za PMBResourceCentre@daff.gov.za Tel: 033 392 7739 Fax: 033 342 8783 P/Bag X 9029, Pietermaritzburg, 3200
<p>Comments: re BID10/02/2021</p> <p>The Department of Environment, Forestry and Fisheries appreciates the opportunity given to register as an interested and affected party for the Background Information Document (BID) for the above mentioned project. DEFF through the sub-directorate Forestry Regulations and Support is the authority mandated to implement the National Forests Act No. 84 of 1998 by regulating the use of natural forest and protected trees species in terms of the said Act.</p> <p>With reference to the document received on 05/02/2021, DEFF (KwaZulu-Natal Forestry Management) concerns pertain to the indigenous vegetation on site i.e. if there are natural forests or protected trees that occur within the proposed project footprint and will be affected by any of the project phases (i.e. construction, operational and decommissioning etc.) in terms of sections 7 and/or 15 of the National Forests Act No. 84 of 1998 as amended.</p> <p>Therefore, should there be any natural forests and/or protected species of concern that has been identified within the site, a vegetation assessment study has to be undertaken to determine the impact of the proposed project on the natural forests or protected tree species. The Draft Basic Assessment report and supporting studies should be forwarded to DEFF offices (KZN Forestry Management) for further review and comments. If there are no concerns as per NFA mandate, DEFF (KZN Forestry Management) will not provide further comments on the proposed project.</p>		
<p>Response: Comments noted. There are no vegetation units comprising natural forests or identified protected species. Please also see Wetland and Ecological Assessment undertaken by Verdant.</p>		
Ezemvelo KZN Wildlife	BID Sent: 05 Feb 2021 Comments Received: No comments received	nerissa@kznwildlife.com PO Box 13053, Cascades, 3202
<p>Comments: 22/04/2021</p> <p>The Background Information Document for the abovementioned application has been reviewed by Ezemvelo's IEM Planning Division (Ezemvelo). Based on the interrogation of our databases, it is brought to your attention that the proposed site is located within a Critical Biodiversity Area (CBA), categorised as Irreplaceable. Critical Biodiversity Areas are natural or near-natural features, habitats or landscapes that include terrestrial, aquatic and marine areas that are considered critical for:</p> <ul style="list-style-type: none"> (i) Meeting national and provincial biodiversity targets and thresholds; (ii) Safeguarding areas required to ensure the persistence and functioning of species and ecosystems, including the delivery of ecosystem services; and or (iii) Conserving important locations for biodiversity features or rare species. 		



Ezemvelo is concerned that the proposed development has the potential to result in negative impacts to biodiversity features known or predicted to occur in and around the CBA. These include inter alia:

Scientific Name:	Common Name	Status
<i>Arthroleptella ngongoniensis</i>	Ngongoni Moss frog	Critically Endangered
<i>Euonyma lymnaeaeformis</i>	Lymnaeid awl snail	Endemic to KZN
<i>Scelotes bourquini</i>	Bourquin's dwarf burrowing skink	Endemic to KZN
<i>Spinotarsus glomeratus</i>	Capitate slender spined millipede	Endemic to KZN
<i>Whitea coniceps</i>	Cone-headed white's grasshopper	Endemic to KZN
<i>Whitea alticeps</i>	High-headed White's grasshopper	Endemic to KZN
<i>Doratogonus montanus</i>	Montane Black Millipede	Least concern
<i>Midlands Mistbelt Grassland</i>	n/a	Endemic to KZN

The conservation of CBAs is crucial, in that if these areas are not maintained in a natural or near-natural state, biodiversity conservation targets cannot be met.

In lieu of the above, Ezemvelo is particularly concerned with potential negative impacts to the Midlands Mistbelt Grassland. While approximately 23% of Midlands Mistbelt is required to meet the conservation target, 76.1% of Midlands Mistbelt Grassland is transformed and a little over 1.5% is conserved. Therefore further transformation of this vegetation type is of concern.

In order to safeguard the abovementioned features from potential negative impacts that may arise due to the proposed development, Ezemvelo recommends that:

1. A suitably qualified specialist be appointed to assess the presence and/or absence of the abovementioned features in and around the proposed site.
2. Should the presence of these features be confirmed, suitable mitigation measures must be investigated and included in the Draft Basic Assessment Report.

Response: Comments are noted.

A Wetland and River Ecosystem Assessment has been undertaken and is included in Appendix C. In addition to the assessment, a specialist evaluation of the CBA has been commissioned and will be forwarded on completion.

KZN Department of Transport Transportation Engineering Sub-Directorate	Michele Schmid Judy Reddy BID Sent: 05/02/2021	Private Bag X 9043, Pietermaritzburg, 3200 Tel: 033 355 8600 Fax: 033 342 3962
Comments: None received		
Response: None required		
Eskom	Brian Akkiah BID sent 05/02/2021	P O Box 66, New Germany, 3620 akkiahb@eskom.co.za Tel +27 (0)31 710 5369 Cell +27 84 233 4610



Comments: <u>No comment received</u>		
Response: None required		
Telkom SA SOC Limited Network Engineering and Build Eastern Region Wayleave Management Section	Wayleaves BID Sent: 05/02/2021	Private Bag X 54326, Durban, 4000 Tel: 033 342 1591; Fax: 033 345 6126 SthembisoM@openseve.co.za PortiaN2@openseve.co.za RaymondC@openseve.co.za RampeRR@telkom.co.za ; mchunusr@telkom.co.za wayleaves2@telkom.co.za
<p>Comment: 03/04/2021 Your undated notification refers.</p> <p>In reference to the Electronic Communications Act no. 36 of 2005</p> <p>This company's existing underground infrastructure which will be affected by the above-mentioned proposal has been indicated on the attached TELKOM DOC. - EWIP_NHDG0497_21</p> <p>Alterations to existing infrastructure may be necessary. An estimate of the cost involved will be furnished upon receipt of a written request.</p> <p>Telkom SA SOC Ltd infrastructure is normally buried at a depth of 0.6m and although the position thereof is shown as accurately as possible, these positions should be regarded as approximate only.</p> <p>It would be appreciated if you could timeously advise Mr S. Maistry of this company on telephone no. 081 475 0160 when you intend commencing the above-mentioned work as there are important OPTIC FIBRE and COPPER CABLES in the vicinity of your proposal.</p> <p>Should you require the infrastructure to be relocated, it will be undertaken at your request and cost.</p> <p>Telkom SA SOC Ltd cannot accept responsibility for any reinstatement costs and our infrastructure should be accessible at all time.</p> <p>Approval of the proposed is valid for six months. If construction has not yet commenced within this time period then the file must be resubmitted for approval. Any changes and deviations from the original planning during construction must be immediately communicated to this office.</p>		
Response: Comments noted,		
AMAFA	Bernadet Pawandiwa BID Sent	bernadetp@amafapmb.co.za amafaddps@amafapmb.co.za bernadetp@amafapmb.co.za
Comments: No comment received		
Response: None required.		
Ingonyama Trust Board	Ms Suewellan Ellis/Tashveer Bothath BID sent 05/02/2021	EllisS@ingonyamatrust.org.za/ bothatht@ingonyamatrust.org.za
<p>Comments: Hi Steven, Please see attached Map and Deeds Office Search. It appears to be that the portions of land in question do not fall under the ownership of the ITB.</p>		



Response: No comments required.		
Harry Gwala District Municipality	BID Sent: 05/02/2021	Mrs Thuthukile MaNgcobo Sithole Water Services Department Research, Planning & Design Unit Administrative Assistant Tel No.: 039 834 3939/2485 Email: ngcobot@harrygwaladm.gov.za
<p>Comments: Re Bid 18/03/2021 Dear Mr Whitaker</p> <p>Please note that as the Municipality , we do not have any objections on the upcoming development however the municipality have the existing infrastructure on the ground (pipes, taps, spring protection, boreholes and pump house) You are kindly requested to contact/liase with Superintendent or Plumber before the project can start, who will assist in showing all the lines and infrastructure on site. The contact details for the Plumber will be provided as soon as You start with the project.</p> <p>As for the future development related comments you can contact Mr Lucky Zondi in the Development and Planning Unit on 039 834 8700 or alternatively email at zondil@harrygwaladm.gov.za</p> <p>Should you have any difficulties or need further clarity please contact Mr Nicholas Nyide (Technician) on 060 993 0361 or email at nyidenathi@gmail.com/nyiden@harrygwaladm.gov.za</p> <p>Regards,</p> <p>Mrs Thuthukile MaNgcobo Sithole Water Services Department Research, Planning & Design Unit Administrative Assistant Tel No.: 039 834 3939/2485 Email: ngcobot@harrygwaladm.gov.za</p>		
Response: Comments noted. None Required. The DBAr will be sent to Mr Lucky Zondi.		
Ward Councillor	Mr M Ndobe BID Sent: 06 February 2021	NdobeM@umzimkhululm.gov.za
Comments: No Comment received.		
Response: Noted		



Appendix E – Site Photographs

- Current Site Photographs



Thusi Access Road – Photographs.



Plate 1. Image looking east at site access point from the existing gravel road off the National Route 2 at 30°31'0.76"S 29°44'48.51"E.



Plate 2. Image looking north showing the site notice board placement at the start point of the proposed Thusi Access Road, at 30°30'56.09"S 29°45'7.85".



Plate 3. Image looking north showing proposed alignment along existing track.



Plate 4. Image looking south west along existing track amongst existing residential dwellings, proposed for road upgrade.



Plate 5. Image looking north towards the mid-point and the uMbumbane river watercourse. Note the location of the proposed watercourse crossing.



Plate 6. Image looking north, upstream of uMbumbane River tributary, located downstream of the proposed crossing.



Plate 7. Image looking north showing non-perennial uMbumbane Tributary which runs adjacent to the proposed road alignment from the end-point, towards the mid-point of the proposed Thusi Access Road.



Plate 8. Image showing the site notice placement along the proposed Thusi Road alignment.



Plate 9. Image showing the Proposed Thusi Road uMbumbane River watercourse crossings point.



Plate 110. Image looking north towards the end point showing road alignment adjacent district water servitude.



Appendix F – Environmental Management Programme